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SYMPOSIUM ON GRADUATE MEDICAL EDUCATION

Historical Aspects of Graduate Medical Education

Accreditation of Institutions Offering Board-Approved Specialty Training

The Advanced Degree in Graduate Medical Education

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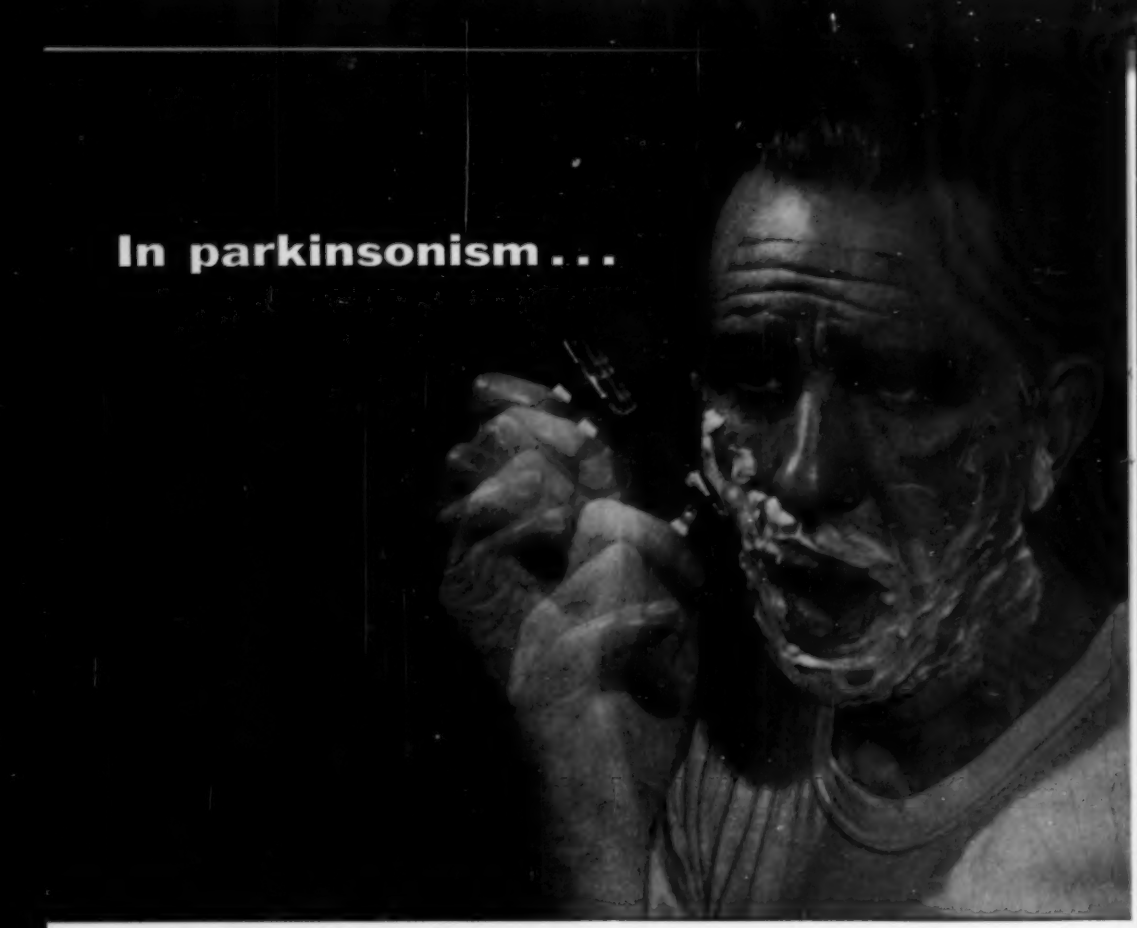

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1. Cass, L. J. and Frederik, W. S.: Malt Soup Extract as a Bowel Content Modifier in Geriatric Constipation, Journal-Lancet, 73:414 (Oct.) 1953.

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ASSOCIATION OF AMERICAN MEDICAL COLLEGES 66th Annual Meeting, October 24-26; Swampscott, Mass. (New Ocean House).

Teaching Institute on Anatomy and Anthropology—October 19-22; Swampscott, Mass. (New Ocean House). (Attendance by invitation only).

American Association of the History of Medicine—May 12-14; Hotel Park Shelton, Detroit.

American College of Cardiology—May 19-21; Hotel Biltmore, New York.

American College Public Relations Association—June 30, July 1 and 2; Chicago.

American Hospital Association, Annual Convention—September 19-22; Traymore Hotel, Atlantic City.

American Medical Association, Annual Meeting—June 6-10; Atlantic City, N. J.

American Pharmaceutical Association, Annual Convention—May 1-7; Miami Beach, Fla.

American Psychiatric Association—May 9-13; Traymore and Claridge Hotels, Atlantic City, N. J.

American Psychosomatic Society—May 4 and 5; Claridge Hotel, Atlantic City, N. J.

American Tuberculosis Society—May 23-27; Milwaukee.

American Urological Association—May 16-19; Hotel Biltmore, Los Angeles.

British Medical Association, Representative Meeting—June 1-4; London, England.

Catholic Hospital Association—May 16-19; Kiel Auditorium, St. Louis.

Congress of the International Diabetes Federation—July 4-8; Cambridge, England.

Eighth International Conference of Social Work—August 5-10, 1956; Munich, Germany.

European Congress on Rheumatism—June 13-17; Scheveningen, The Hague, Netherlands.

International Anatomical Congress—July 25-30; Paris, France.

International Congress of Biochemistry—August 1-6; Brussels, Belgium.

International Congress of Comparative Pathology—May 26-31; Lausanne, Switzerland.

International Congress of Plastic Surgery—August 1-4; Stockholm, Sweden.

International Surgical Congress—May 23-26; Geneva, Switzerland.

Medical Library Association—May 17-20; Hotel Schroeder, Milwaukee.

National Tuberculosis Association, 51st Annual Meeting—May 23-27, Milwaukee, Wis.

Student American Medical Association—May 6-8; Sherman Hotel, Chicago.

World Medical Association—September 20-26; Vienna, Austria.

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2. Reder, E. L.: *New York Jour. Med.*, 54:1659, June 1, 1954.
3. Berris, Harold: *Neurology*, 4:116, Feb., 1954.
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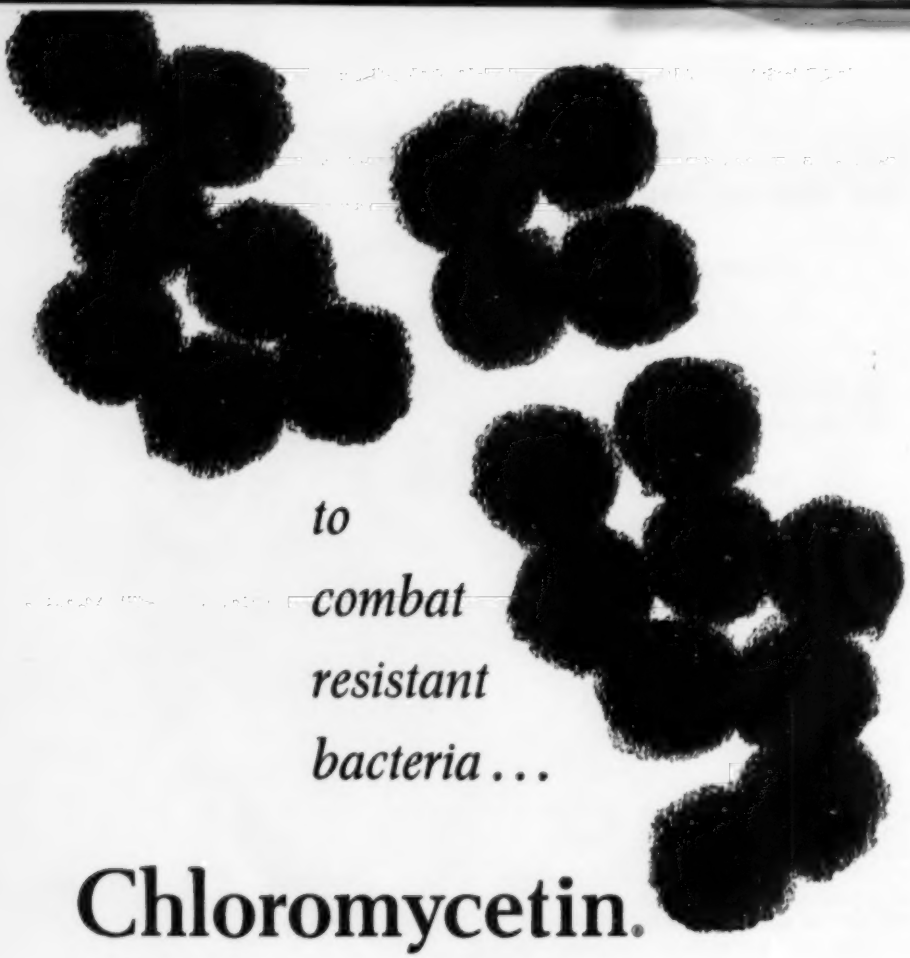

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Symposium on

Graduate Medical Education

THE PAGES OF the article section of the Journal of MEDICAL EDUCATION this month are devoted to a symposium on graduate medical education. The various articles were presented as papers at a symposium on graduate medical education, held during the 65th Annual Meeting of the Association of American Medical Colleges, October 18-20, in French Lick, Ind. Kendall B. Corbin, chairman of the Association's 1953-54 Committee on Graduate Medical Education and chairman of the symposium in French Lick, served as guest editor for this section.

Introduction

TODAY MORE THAN half of those physicians completing internships enter additional training in one of the specialties of medicine or surgery. This extension of medical education requires of the candidate for qualification in a specialty an expenditure of from two to four years in prescribed programs and of several years in practice.

The Committee on Graduate Medical Education of the Association of American Medical Colleges has defined graduate medical education as "organized, full-time, post-internship training in the clinical specialties (including the clinical laboratory sciences), which prepares the physician for specialty practice and which may or may not qualify him for an advanced degree." The majority of members of the committee expressed the belief that the term "graduate medical education" is intended to include residency and fellowship programs, but that it is not intended to comprehend short, refresher courses or symposia designed, for the most part, for the general practitioner. Short courses and symposia such as have been mentioned, the committee decided, should be designated "postgraduate" or "continuation" education. Thus, this symposium is concerned with graduate medical education.

Training in a specialty is far more than the frosting on the cake of medical education. It might be considered the uppermost tier of a three-layered educational masterpiece, each layer of which is topped by filling or frosting. The bottom layer of such a cake would represent premedical education; the filling on this layer would be the bachelor's degree. The middle

layer of the cake then could be taken to represent the undergraduate medical course; the filling above it the internship. The top layer would stand for fellowship or residency training; the thickness of this layer would approximate that of each of the other layers and the icing would typify required practice.

This symposium concerns the top layer, as has been said, and I hope by the foregoing homely analogy to have implied that graduate training is an integral part of the entire structure of medical education, not an isolated entity. We hope that these papers will represent more than a mere review of graduate medical education. May they lead to ways and means for improving residency and fellowship programs and thereby strengthening specialty training as well as ultimately benefiting undergraduate medical education—KENDALL B. CORBIN.

Historical Aspects of Graduate Medical Education

THOMAS E. KEYS

BILLROTH[1] pointed out that as long as the healing art had been practiced it also had been taught. At first the teaching was only by oral communication but later, with the development of language symbols, written records also were employed. He conceded that one may acquire a vast amount of medical knowledge from books.

But such knowledge does not make a physician. The student also must see the master diagnose and treat disease, and hear him explain his diagnosis, treatment and prognosis. The more the student learns, Billroth added, the more he will be able to accomplish later. In order to make for a permanent understanding of medicine, all knowledge must be controlled by the laws of arithmetic and logic.

Billroth, however, doubted that such control would ever be attained: "I doubt, if this goal will ever be reached—at least in the art of healing; certainly not until the art of poetry is wholly resolved into prosody, the art of painting into chromatics and the art of music into acoustics. The physician, like the artist, must constantly produce and reproduce. Disease processes and disease products which lie veiled before him must crystallize out of the many direct sense implications in his mind into a picture which will become clearer and more nearly correct the more he knows about these disease processes and disease products. But this knowledge is of no value to him if he lacks imagination and the power of synthesis."[1]

Mr. Keys is librarian of the Mayo Clinic, a part of the Graduate School of the University of Minnesota.

Fifty years after Billroth, another famous medical educator, William Osler,[3] said: "Postgraduate study is a habit of mind only to be acquired, as are other habits, in the slow repetition of the practice of looking at everything with an inquiring spirit." In Rochester, in Mayo Foundation House, is a stained glass window devoted to medical history. One panel bears another famous Osler quotation, "Each case has its lesson; a lesson which may be but is not always learned."[3] Here again Osler suggested the value of repetition in the education of a physician. Osler felt there were many factors in postgraduate training. These included: "Note taking, reading, the medical society, and the quinquennial brain-dusting at a hospital, or a postgraduate school."[3]

Early History

It seems likely that specialization preceded general medicine. This is supported by the earliest known medical records, those of the Egyptians, where many references are given to the medical specialties. Support for this idea can be found also in Herodotus[4] where, in writing of medicine in Egypt, he said, "Medicine with them is distributed in the following way: every physician is for one disease and not for several, and the whole country is full of physicians, for there are physicians of the eyes, others of the head, others of the teeth, others of the belly, others of obscure diseases."

Sigerist[5] referred to a funeral inscription found at Gizeh giving interesting information about an Egyptian court physician who lived around 2500 B.C. This man was not only a palace physician, but also superintendent of the other court physicians who were probably all specialists. Apparently this distinguished gentleman practiced several specialties for he was known as "palace eye physician," "palace physician of the belly" and "guardian of the anus."

Garrison[6] wrote that the Babylonians, in the same fashion as the Egyptians, had a special doctor for each disease. There are many references to specialism in early Hindu, Jewish and Oriental history.

Details[7] concerning the training of the early Hindu physicians are found in the Ayur-Veda composed by Charaka and Susruta. Charaka advised young men desirous of studying medicine to seek a teacher whose precepts were sound and whose practical skill was generally approved, who was clever, dexterous, upright and blameless; who knew how to use his hands, and so forth. He advocated the three best means of acquiring medical knowledge as: (1) study of medical writings, (2) personal teaching by the instructor and (3) association with other doctors.

In the period of early Greece, medical instruction took place under the teacher's personal supervision. Often the practice of medicine was a family affair, the father imparting his knowledge and the results of his experience to his sons. According to Cunningham[8] there were no specialists, the same teacher giving instruction in surgery and medicine.

At a somewhat later date, there existed the Medical School of Cos, of which Hippocrates and his followers were the guiding spirits. The Hippocratic school stressed the importance of direct observation in teaching; medical practice was permitted to everyone who considered that he had the requisite knowledge. Drabkin[9] implied that a kind of graduate teaching constituted a part of Greek medicine in that advanced pupils were left to observe and attend pa-

tients between the visits of the physician.

The superior intellectual qualities of the Greeks contributed to the development of medical teaching, for the physician had to satisfy his fellow men. Ignorant and unskilled doctors were given over to public scorn. The intimate relations between medicine and philosophy also contributed to high standards in medical teaching and practice.

Greek medicine carried over into Roman times, but the educational aspect of it consisted mostly of transmission of medical knowledge from father to son. The general deterioration of civilization consequent on the fall of Rome was shared by medicine. In the early years of the Christian era medical education was almost entirely in the hands of the clerics and monks.

With the advance of Arabian civilization, there was a revival of interest in medicine. At first the Arabs translated the Greek contributions into Arabic; later they added their own observations. As in the early Christian era, the higher educational activities, including those in medicine, were first attached to religious establishments. Medical education was carried on by individual preceptorship and finally in medical schools connected with the hospitals. Some Arabian physicians, according to Puschmann, were specialists who devoted themselves to treatment of fevers, others to healing of wounds, some to reduction of fractures and still others to diseases of the eye.

The Arabian influence extended even to Salerno, Italy, where a medical school was founded, presumably in the ninth century. Salerno was a graduate school in the sense that it was an informal community of students and teachers banded together to increase their medical knowledge. Another famous medical school of the medieval period, and one which is still in existence, was at Montpellier, in France; Garrison said this school was founded in 738.

University Schools

Some time later, the first universities were established. They were, at first, small communities of teachers and students. Later they were recognized by the governments as corporations and were granted special privileges, such as jurisdiction over their own members, subsidies, exemption from taxation and the right to grant degrees.

With the establishment of the universities, medicine was introduced as a part of the curricula; the private medical schools declined in number, and those that survived became inferior. Today it is hard to realize that when the first universities were founded there were no printed books; it was the period of the manuscript. Medical education was limited to memorizing and copying from the masters such as Hippocrates, Galen and Avicenna. Seldom was instruction given in anatomy; bedside instruction, for the most part, also was unknown.

With the downfall of the feudal system and with the invention of printing, authority was weakened, individualism developed and free thought was reborn. Greek culture was revived by Byzantine scholars. Medicine consequently took on a more practical aspect as the Renaissance progressed.

After the development of anatomy under Vesalius, the most important event in medical education was the introduction of practical instruction at the bedside. As early as 1554, as mentioned by Billroth, Viennese

physicians were required by statute to serve in the hospitals. Clinical teaching became a permanent institution by 1630 at the University of Leyden.[7,8] Clinical instruction spread to other Dutch universities and hence to other medical centers such as Rome, Edinburgh and Paris. In 1753, the first Viennese clinic was instituted. Soon afterward clinics were established by German universities and in other European medical centers.

In the universities, teaching of surgery was limited. The students were given an exposition of principles and the most important operations were performed for them on cadavers. Surgery got on its own in the 18th century with the founding of the *Academie de Chirurgie* at Paris, in 1743. The *academie* was given rank equal with the faculty of medicine and was enabled to grant the degree, master of surgery, but candidates were required, first, to have acquired their degrees of master of philosophy.

In England and Holland the responsibility for the system of higher surgical education lay with the surgeons' guilds. When surgical schools were founded, German surgeons attained a higher position than before. At first their purpose was to train medical officers for military service, but students also were taken from among civilian physicians. Such an institution was founded at Hanover in 1716. Other military medical schools were founded in the 18th century in Vienna, St. Petersburg, Copenhagen and Cadiz. In the new United States, in 1782, John Warren, according to Paddock,[10] began in Boston systematic instruction in surgery and anatomy at the military hospital which he commanded.

Although the greater part of American physicians of this period were trained by preceptors and were without formal schooling, many distinguished American physicians took formal training in Great Britain and on the continent and spent several years in graduate work. At the University of Edinburgh, as early as 1770, there existed a chair of anatomy and "institutes" of medicine. As mentioned by Osler,[11] by 1800, 112 Americans had been graduated from Edinburgh, including William Shippen, John Morgan, Samuel Bard, Adam Kuhn, Benjamin Rush, Caspar Wistar and Philip Syng Physick.

In the first half of the 19th century, Americans secured their advanced training in France, especially in Paris. Education there, as in England, was of the clinical variety and emphasis was placed on work in the hospitals.

The period from 1850 to 1880 saw the rise of German scientific medicine. It was associated with the universities, as mentioned by Davison.[12] Medical education of the university type also was prevalent in Denmark, Sweden, Norway, the Netherlands and German-speaking Switzerland.

As suggested by Welch,[13] the distinctive features of the German universities of this time and later were as follows: (1) freedom of teaching and learning; (2) absence of compulsion in the order, choice and duration of studies other than that imposed by examinations; (3) release from division of students into fixed, annual classes; (4) the advantages of the wandering of students from one university to another; (5) the docent system; (6) the competition between teachers of the same subject.

Beginning about 1875, the German professor was required not only to teach but also to be an investigator in the branch of science which he

taught. Thus the German centers for research, later to be called "institutes," were developed. As medical science advanced, there was a tendency to give more emphasis to specialization. This in turn led to special examinations, attainment of a passing grade in which would serve as a guarantee that the specialist had acquired the knowledge necessary for his calling.

American Medicine

Meanwhile, in the United States medical education was at its lowest ebb. President Eliot of Harvard said in his 1871-72 report: "It is fearful to think of the ignorance and incompetence of most American doctors who have graduated at American schools. They poison, maim and do men to death in various ways, and are unable to save life or preserve health."[7b]

John Shaw Billings[14] also took notice of unfavorable criticism of American medicine: "Every one here seems dissatisfied; and abroad, while English writers are pointing out the superiority of the French or German systems, and French writers demanding less centralization of the English plan, we nowhere find the system of the United States held up as a model."

The provost of the University of Pennsylvania, William Pepper, summed up the defects of the American system of medical education as follows:

First, the absence of a preliminary examination; second, the very short term of studies required; third, the want of personal training in the practical branches; fourth, the absence of any grading of the curriculum; fifth, the examination of the candidates for the degree by those having a direct pecuniary interest in their success."[14]

As Balfour[15] has emphasized, the chief usefulness of postgraduate instruction in the early days in the United States was to make up for the deficiencies of the undergraduate medical school. Many postgraduate schools were conducted solely on a commercial basis and took advantage of the desires of graduates to be called specialists after taking a few short courses.

As early as 1803, as mentioned by Reynolds,[16] the New York Hospital opened its wards to graduate students and, from 1822 until 1873, hospitals in New York offered some sort of a program in graduate instruction in the clinical specialties of eye, ear, nose and throat and diseases of the skin and, in 1873, the alumni association of the College of Physicians and Surgeons was incorporated. It was hoped that this body might give impetus to postgraduate teaching, but it was not until 1877 that some teaching actually started. The New York Polyclinic began to function in 1882 as well as the New York Postgraduate Medical School.

In other areas of the United States interest in postgraduate instruction was manifested. In Chicago, in 1892, a small group of physicians and others met evenings to study the basic sciences and diagnosis. By 1921, practically all southern medical schools had included some provision for this instruction.

The gradual improvement in medical standards brought about by the demands of state boards of licensure and increased interest in specialization, made it obvious that a new type of graduate instruction was desirable.

This was accomplished in a preliminary way by Johns Hopkins Hospital which, in 1890, introduced into American medicine the residency

system. This Dr. Welch said was "the most important contribution which Johns Hopkins made to medical education."[17]

Another contributing factor to the development of graduate medical education, of which there can be no doubt, was the growing concern by the American Medical Association, American Academy of Medicine, Association of American Medical Colleges and state licensing boards over the poor caliber of American medicine. From 1904 to 1914, as outlined by Johnson,[18] occurred the "decade of revolution" in American medicine. This began in 1904 with the creation of the Council on Medical Education of the American Medical Association and, eventually, the entire scheme of medical education became readjusted under Bevan's [19] guidance. Bevan's report was not published but his standards for medical education were. This brought about considerable improvement, especially by consolidation of several poor schools into one good school in some instances.

The poorer medical schools were resentful of the new standards, and so the council suggested a complete and impartial survey. This was begun in 1908 by Abraham Flexner, for the Carnegie Foundation, and N. P. Colwell for the council. The results were published in the Flexner report,[20] in 1910.

Another factor which was to exert considerable influence on graduate medical education was the creation of the examining boards in specialties. The first of these was the American Board of Ophthalmology, originating in 1915. It was established to certify competence in a specialty and also to advise and guide aspirants for certification in the planning of their training programs. After World War I the specialty board movement spread rapidly and now covers practically every field related to medicine. As Dr. Chesney humorously remarked, "Only the field of medical administration has escaped the contagion so far, but there is no telling how long the deans of medical schools and the directors of hospitals will be able to maintain an effective guarantee against it!" [21]

Another advance in graduate medical education was the establishment of graduate schools and graduate foundations relating to medicine, some patterned after the German "institutes" and some entirely different.

At Johns Hopkins, Welch set up the school of hygiene on a graduate level in 1917. Other departments in which graduate training was emphasized at Johns Hopkins were: Brady Urological Institute (1915), Wilmer Ophthalmological Institute (1925) and the Institute for the History of Medicine (1930).

Minnesota Program

For several years previous to 1915 the University of Minnesota, in common with other universities, had been offering graduate work in the basic sciences, as mentioned by Wilson,[22] but a more ambitious project of graduate instruction under university auspices was initiated by Minnesota in 1914. That year a committee was appointed to consider the use of the facilities available at Rochester for graduate training in the clinical fields.[23] After considerable study, by action of the board of regents graduate training in the clinical fields, on a university level, was inaugurated in 1915 under the auspices of the graduate school of the university. Two years later a permanent union with immediate transfer to the university

of an endowment fund took place. Also, at this time the Mayo staff, clinics, laboratories, library and other equipment, which had been used since 1915, were formally put at the disposal of the university.[24]

From the beginning the requirements for a fellowship either at the university or in the foundation were put on the high level of a bachelor's degree plus the medical degree and one year's internship.

As mentioned by Dean Lyon*[25, 26] concerning the Minnesota experiment, for years previously every good medical school in the United States had been doing graduate work in the clinical branches but for the most part it was unsystematized. Nevertheless, in the clinics and the laboratories there were always young graduates eager to learn. Many of the best men on the faculty of Rush Medical College were trained thus.

At the University of Minnesota, moreover, as far back as 1910 the faculty had decided to organize a two-year graduate course in surgery and to offer a special degree. By 1914 the faculty decided to adapt, on a wider scale, the University of Michigan's plan of full-time, small-salaried clinical assistantships together with advanced courses leading to higher degrees. Since that time graduate work in medicine has been available at the Minneapolis campus as well as at Rochester (1915) and often there is, and has been, an interchange of students.

The pioneering work of the University of Pennsylvania in graduate medical education was also significant and, by the fall of 1920, the university inaugurated the first fairly comprehensive group of systematic graduate courses in medicine to be offered in the United States.[28]

As Pullen[29] recently has shown, graduate medical education in the bulk is today dependent on the requirements established by the examining boards in specialties and most medical training programs are under the administration of non-university institutions such as community hospitals, or of several federal agencies such as the Veterans Administration, the United States Armed Forces, and the United States Public Health Service.*

World War I revealed lack of knowledge and need of technical skill among many members of the medical profession, as has been outlined by Barker[30] and, since 1920, a constantly increasing number of residencies, superimposed on the internship training program, have been necessary to provide men with thorough training in the specialties.

Specialty Training

World War II gave increased impetus to specialization[31] and many physicians formerly in general practice felt both an intellectual and economic need to become trained in the specialties for the postwar period. Federal aid under Public Law 346 (G.I. Bill of Rights) caused residency programs to grow rapidly.

Graduate medical education, although existing since time immemorial in Great Britain, has taken place in an organized way only since the beginning of the present century. An interesting recent development is the British Postgraduate Medical Federation which was organized by the University of London to develop and coordinate graduate medical ed-

*The accomplishments of Dean Lyon have recently been reviewed by the present dean, Harold S. Diehl.[27]

*In some cases, to be sure, the universities serve in an advisory way.

ucation. It includes the Postgraduate Medical School and institutes in the specialties. In Canada there is, of course, considerable opportunity for graduate training. There the requirements for obtaining fellowships in the Royal College of Physicians and Surgeons of Canada are followed. Some teaching centers also provide postgraduate courses which give special training in surgery or medicine as outlined by MacDermot.[32]

It has been difficult to find material on the historical aspects of graduate medical education in the Soviet Union. An article by S. V. Kurashov,[33] however, revealed that until 1930 the medical schools remained part of the universities. At that time they were separated from the universities and reorganized as institutes under the minister of health. Graduate medical education as we know it is primarily concerned with the training of medical teachers needed to staff the new institutes. For hospital medical officers, this training now consists of three years of work in the clinics of a medical institute where, besides the practical work, the medical officers take part in research. This three-year course qualifies the officer as a specialist in some branch of the profession. There is also a special postgraduate institute for the training of assistant professors and clinical directors. This is a three-year course, which is available by open examination to physicians who have already been in practice and physicians who have just completed their first three-year postgraduate course.

Another factor which has had a decided influence on residency training, as suggested by Deitrick and Berson,[34] is the increase in the number of patients in hospitals, both those who carry hospital insurance and those who do not. The overwhelming figures of 1950 are suggestive of this trend. In 1950, 76,961,000 people in the United States held hospital insurance, 54,477,000 people carried some kind of surgical expense insurance and 21,589,000 individuals carried medical expense insurance.

As a consequence of these trends an altered philosophy of education is essential. As suggested by Carlson [35] this philosophy will greatly increase the social responsibility of the scientist. Carlson hopes for a turn for the better in education by: (1) education through the better understanding of man's environment including history, sociology, economics, politics, literature and religion; (2) cooperation instead of violence and war; (3) conservation instead of waste of our natural resources, and (4) survival of the most fit in our age of science by application of humane behavior instead of violence.

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Accreditation of Institutions Offering Board-Approved Specialty Training

EDWARD H. LEVEROOS

IN A RECENT article published in the Journal of MEDICAL EDUCATION, the following statement appeared: "Our program of postgraduate hospital training is the fruit of intense study and careful planning. It has occupied much time and thought individually and by the department of internal medicine. One reason is that the residency has been the source of recruiting candidates for a career in teaching and research. Another reason has been that residency training too often has gone by default or has been tailored to suit the pattern suggested by outside agencies."

There are two implications one may draw from this statement, both of which, it seems to me, are germane to the subject I have been asked to discuss. They are, first, that training at the graduate level has become an increasingly important phase of medical education and, second, that programs designed to meet the requirements of outside agencies (and by that designation I assume the author refers to the approving bodies) are perforce less satisfactory than they would be if such requirements were disregarded. As to this first concept, I quite obviously have no quarrel. The second, however, I believe, is not well founded and open to question. I suspect that the author of the article in making this statement was either not fully informed or was indulging in a bit of tail twisting of the approving agencies, a not infrequent pastime. In either case, I believe the reference to these organizations requires some comment as to their functions and purposes and provides a convenient, if somewhat quizzical introduction to my discussion on the accreditation process.

In considering how to present my viewpoint on this to-some-extent controversial subject, I was reminded of the five cardinal points in developing a short story, as they were taught us in our early courses in English—who, what, when, where and why. I trust that it will not be considered inappropriate to allude to education at such a lowly level before a group of educators who have perhaps long since forgotten the teachings of their secondary school days. At the risk of courting criticism on this score, however, I should like to develop the subject along those lines.

The "Who" Aspect

In discussing first, then, the "who" aspect of accreditation or, more properly, of approval, we should perhaps identify the organizations involved. They include the Council on

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Medical Education and Hospitals of the American Medical Association, the American boards in the medical specialties and in two fields—internal medicine and general surgery—the American College of Physicians and the American College of Surgeons respectively. These organizations, acting independently in some specialties or through collaborative arrangements in others, participate in the residency approval program.

A word of explanation may be in order at this point regarding the relationship of the Council on Medical Education and Hospitals to the examining boards in the medical specialties (specialty boards). For the past 35 years, the council has published annually a list of hospitals offering training at the graduate level; i.e., internships and residencies. Further, it has established certain basic requirements for such programs and has carried out an inspection procedure under which hospitals requesting approval were visited and their training programs evaluated. Residencies approved by the council are listed annually in a special issue of the *Journal* of the American Medical Association Internship and Residency Number. The lists of approved services are published in reprint form as the "Directory of Approved Internships and Residencies."

The council, acting independent of other organizations, presently approves residency programs in several fields including occupational medicine, contagious diseases, malignant diseases and general practice. Conversely, in those specialties in which approved examining boards have been established, residency programs are approved by concurrent action of the council and the specialty board concerned. While the primary function of these boards is the examination and certification of individuals who meet their requirements, educational and other, a secondary and perhaps equally important function which the majority of boards include in their sphere of interest is the improvement of standards of training in the specialty. As a consequence, there is a direct relationship between the council's activities in this area and those of the specialty boards.

During the past 15 years, a close working relationship has been developed between the council and the several boards in establishing minimum standards for residency training, in reviewing training programs and in developing a list of residencies approved by both organizations. Within the past 18 months a closer coordination of the efforts of the council and several boards has been developed through the establishment of residency review committees. These committees, acting in behalf of the boards and the council, are directly responsible for the evaluation and approval of residency programs in approved hospitals. They have been established in 12 different fields and are under consideration in five others. This direct collaboration between the agencies involved can be expected to result in a more effective and efficient approval procedure.

The American College of Physicians and the American College of Surgeons complete the listing of the *personae dramatis* in considering the "who" of the approval program. The former organization, along with the American Board of Internal Medicine and the Council on Medical Education and Hospitals, participates in the evaluation and approval of programs in internal medicine, through representation on the Residency Review Committee for that specialty.

In point of fact, this committee, established prior to World War II, served as the prototype for the committees now established in 11 other specialties. A comparable committee, the Conference Committee on Graduate Training in Surgery, with representatives from the American Board of Surgery, the American College of Surgeons and the council was established in 1951 and has functioned effectively in the field of general surgery since its inception.

The "What" Aspect

Having presented the cast, we may now proceed to a consideration of the next cardinal point in considering the approval program. What precisely is involved in approval of a residency program? Before proceeding to discuss this point, I should like to call attention to my use of the term "approval" rather than "accreditation," inasmuch as the latter term appears in the title of this part of the symposium. Accreditation, as applied to hospitals, relates to the administration, organization and professional service activities of the institution. Conversely, approval in its more limited use relates to the educational activities of the hospital or, more correctly, of its medical staff. In this discussion I shall and have used the term "approval" in this more restricted sense.

The mechanism of approval is relatively simple. To begin with, a hospital desiring approval for its residency programs applies to the council for such recognition. While this fact may be self-evident, I mention it to make the point that participation in the approval program to this extent, at least, is entirely voluntary on the part of the hospital. The approval program has no legal basis, but has been developed as a service to the profession and to hospitals, both medical school-affiliated and non-affiliated. In this regard, it parallels the cooperative program for approving medical schools as conducted by the Association of American Medical Colleges and the council.

After the application is made, the hospital is visited by a member of the field staff of the council for the purpose of reviewing the proposed residency program. The council has nine physicians employed on a full-time basis who visit hospitals throughout the country for this purpose. They evaluate the residency in terms of standards which have been established by the council in collaboration with the specialty boards. I think it pertinent at this point to comment briefly on these standards, "Essentials of Approved Residencies and Fellowships," since they reflect the council's and the board's thinking with respect to residency training in the medical specialties, and to the extent to which these standards are educationally sound, the approval program may be considered valid.

These standards may be grouped under two categories: those of a general nature pertinent to all specialties, and those specific for each specialty. In the former group are included basic requirements relating to the hospital staff, the department of radiology, the department of pathology, the medical library, medical records, the training program and other aspects of the residency such as eligibility of applicants. Are these standards unnecessarily restrictive or unreasonable? To answer this question, I should like to quote from one or two of the more significant sections of the essentials.

Under the heading "Staff," we find the following: ". . . a well organized and well qualified staff is one of the most important requisites in a hos-

pital assuming responsibility for residency training. It may well be the determining factor in the development and approval of a graduate training program. . . . The particular specialties in which residents are being trained should be represented in the staff by well qualified, experienced and proficient physicians, whether or not they hold membership in special societies and colleges or are certified in their specialty. Adequate organization of the medical staff presupposes careful selection of the head of the department and of the chiefs of the various services. In addition to their qualifications in the specialty, they should have high professional standing, and possess the attributes of the teacher. Being responsible for the training of residents, they should be chosen on the basis of ability, aptitude and interest." I do not believe that anyone could justifiably take exception to this statement or consider it other than a basic principle of medical education.

Again, under "Training Program" we find the following: "It is not essential, or even desirable, that all hospital residencies should adopt exactly the same program, or that they should offer a rigidly uniform sequence of experience. It is essential, however, that all hospitals participating in graduate training should be able to meet the fundamental essential requirements for an approved program and either alone or in collaboration should attain comparable results in the quality of training and amount of experience obtained." I quote this statement in particular because I believe there appears to be a misunderstanding on the part of some individuals who have not examined the matter carefully, that the establishment of standards implies standardization, a term which in the field of industry is entirely acceptable but in the field of medical education is a synonym for mediocrity.

Are the specific requirements for the specialties arbitrary or limiting? Since internal medicine was referred to in the article quoted in the opening paragraph, I shall use it as an example: "Residencies and fellowships in internal medicine should be organized on a broad basis to furnish instruction in the various specialties which combine to form the foundation of practice in internal medicine. Accordingly, the service should not be limited entirely to internal medicine and its subdivisions, allergy, cardiovascular diseases, gastroenterology, metabolic diseases, contagious diseases and pulmonary diseases, but should include instruction in psychiatry and neurology, and might well include a reasonable amount of training in dermatology and pediatrics, now organized as independent specialties . . . Of particular importance is the study of etiology, pathogenesis, symptomatology and course of the various diseases so that the residents may develop skill and accuracy in diagnosis as well as a mature judgment and resourcefulness in therapy.

"Under the supervision of qualified members of the staff, the residents should assume individual responsibility in actual case management. They should also be required to correlate clinical studies with postmortem pathology, review medical literature and take an active part in weekly teaching rounds, departmental seminars and clinical-pathologic conferences." I would like to suggest that a reasonably satisfactory residency in internal medicine can be developed within this "pattern suggested by outside agencies."

To return to the matter of approval

procedure, the report of the survey of the field representative, the application and other pertinent material is then referred to the appropriate Residency Review Committee for evaluation. These committees are composed of six or more individuals, all but one of whom are men of outstanding reputation in their specialty. Many of them are on medical school faculties. The secretary of the committee, a member of the council's headquarters staff, represents the council's broad interest in medical education. Depending upon the action taken by these committees, the application is approved, approval withheld or the application held in abeyance for one reason or another. This then constitutes the "what" of the approval program.

"When and Where" Aspects

The "when and where" aspects can be disposed of briefly. As to the former, the "when" of approval may be considered the date of publication of the "Directory of Approved Internships and Residencies," which ordinarily appears the last week in September. Approval is granted on an annual basis and is considered to cover the academic year (July 1–June 30) following publication of the directory. Approval is continued automatically until such time as the program is again reviewed by a field representative when its status is reevaluated. The field survey program is set up on the basis that the majority of hospitals approved for training will be visited every two years. Those hospitals in which long established programs have been conducted may not be visited more often than once in three or four years.

Regarding the "where" of our subject, approved residency training is now being carried out in 1,186 hospitals throughout the country. Of this number 109 are federal hospitals including 76 in the Veterans Administration. The federal hospitals offer a total of 3,661 appointments, 80 per cent of which are Veterans Administration positions. There are 318 other governmental hospitals—city, county and state—approved for residency training. They have 8,275 positions available at all levels of training. The nongovernmental group of hospitals, including church controlled and other not-for-profit institutions, offer 11,-094 appointments or roughly half the total.

Because of the difficulty of defining "affiliation" as it pertains to medical school hospital relationships in the organization of a residency program, no attempt has been made to classify residencies on that basis. I am unable, therefore, to state what percentage of approved residency programs are being conducted in "medical school-affiliated" hospitals, as informative as such a statistic might be.

The "Why" Aspect

And now, by way of concluding this discussion, I would like to present in brief the more controversial aspect of this subject: the "why" of the approval program. Certainly one could make a point for the abolition of all types of accreditation in medical education and hence the elimination of all standards and requirements. To take this position, however, is to assume that all of us are capable of adequate self-direction and self-appraisal. Regrettably, we have not as yet reached this point nor, functioning as we are within the limits of the human equation, are we likely to do so in the foreseeable future. None of us like re-

straints, least of all those of you who devote your careers to teaching in an environment where the shibboleth of academic freedom can evoke a rather marked reaction. Until we have attained the goal where all residency training is soundly conceived and competently carried out, where young physicians can indenture themselves to a hospital for three or four years of their professional lives with complete assurance that they will receive a rewarding educational experience for their services and where no hospital will exploit the young physician under the guise of medical education; until that goal is reached, there is, it seems to me, a need for some kind of approval program, however imperfect it may be in some of its operations.

Quite aside from philosophic considerations, there are a number of more practical reasons for the approval program. If only to provide the young physician with information as to where graduate training is available, a list of residencies is necessary. The publication of such a list without any attempt to evaluate the training being offered would have, I believe, most unfortunate consequences. Further, payments of veterans' benefits and those of other agencies such as insurance companies necessitate the development of a directory of hospitals in which training is available having some kind of "official" recognition. I cannot deny that the approval program requires revision and strengthening in some of its facets. Like taxes, however, it is, I believe, a necessary concomitant to our social and educational order.

The Advanced Degree in Graduate Medical Education

KENDALL B. CORBIN

THIS DISCUSSION is concerned with the practice of granting an advanced academic degree to the doctor of medicine for the completion of graduate work in a clinical field. Not under discussion is the far more common and well-established custom of granting an advanced degree to a physician for work accomplished solely in a basic medical science. Degrees usually offered for graduate clinical training are the Master of Science and the Doctor of Philosophy in named special fields; that is, Master of Science of Orthopedics, Doctor of Philosophy in Medicine. Certain schools offer the degrees Master of Medical Science, Doctor of Medical Science, Master of Science in Medicine, Doctor of Philosophy in Medicine, Master of Public Health and Doctor of Public Health.

A questionnaire submitted last year by the Committee of Graduate Med-

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ical Education of this Association to 72 four-year medical schools of the the United States elicited the information that 31 schools offer advanced degrees to physicians who complete graduate programs in clinical fields.[1] These schools are listed in Table 1, where also it is indicated that a number of institutions limit their graduate medical programs to certain clinical specialties.

Degree Programs

Although there is considerable variation in the programs offered by different schools, customarily three years of full-time work are required to earn an advanced degree in a clinical specialty. Almost without exception, a portion of this period, usually six to 12 months, must be spent in studying one or several of the basic medical sciences. As a rule,

TABLE 1

Schools Offering to Graduate Physicians Advanced Academic Degrees in One or More Clinical Specialties

Baylor University College of Medicine
University of Chicago School of Medicine
University of Cincinnati College of Medicine[1]
University of Colorado School of Medicine
Columbia University College of Physicians and Surgeons
Creighton School of Medicine
Georgetown University School of Medicine
Medical College of Georgia
University of Illinois College of Medicine
Indiana University School of Medicine[2]
State University of Iowa College of Medicine
University of Kansas School of Medicine
Marquette University School of Medicine
College of Medical Evangelists School of Medicine
University of Michigan Medical School
University of Minnesota Medical School[3]
University of Nebraska College of Medicine
New York Medical College
New York University College of Medicine[4]
Northwestern University Medical School[1]
Ohio State University College of Medicine
University of Pennsylvania School of Medicine[5]
University of Pittsburgh School of Medicine
St. Louis University School of Medicine[6]
University of Southern California School of Medicine
Temple University School of Medicine
University of Tennessee School of Medicine
Tulane University of Louisiana School of Medicine
University of Virginia School of Medicine[7]
University of Washington School of Medicine[8]
Wayne University College of Medicine

1. Credit not allowed for clinical work.
2. Anesthesiology and psychiatry only.
3. Degrees also offered through Mayo Foundation, Rochester, Minn.
4. Graduate work in New York University Post-Graduate Medical School.
5. Graduate work in University of Pennsylvania Graduate School of Medicine.
6. Offers only Doctor of Industrial Medicine.
7. Limited program and may be discontinued.
8. Master of Science in Surgery only.

also, a piece of laboratory investigation must be completed and the results presented in a dissertation. Generally, it is required that the thesis embody the results of the candidate's own laboratory or clinical investigations; reports of cases or statistical treatment of clinical data usually are not acceptable.

Graduate medical programs which lead to the granting of a degree can be classified, roughly, in two categories. There are several variations, however, and each school lays down its own requirements:

First, the program of the University of Pennsylvania, or modifications thereof, requires of the graduate physician the following: (1) he must complete successfully an academic year in a formal, didactic basic science program; (2) he must complete satisfactorily a minimum of two years of approved clinical training in his specialty; (3) his thesis, based on a suitable research project, must be accepted. This program is related to "affiliated hospital residency programs" such as that offered by New York University; programs of this sort will be described in greater detail by Dr. de la Chapelle.

Second is the graduate medical program such as is offered by the University of Minnesota and other university graduate schools through fellowships and residencies. The "Minnesota plan" has been in effect at the Mayo Foundation since 1915. It provides fellowship training over a minimal period of three years, during which at least six months must be spent, full-time, in one of the basic medical sciences logically related to the candidate's major field. During this laboratory period, a holder of a fellowship is likely to do an independent piece of investigation, which subsequently becomes the subject of his dissertation. This report, as a rule, can be made suitable for publication in a standard medical journal. Preceptorial clinical training, under the direction of full-time staff members, who also are members of the faculty of the Graduate School of the University of Minnesota, is supplemented by a fully organized program of lectures, demonstrations, conferences and seminars. The candidate's proficiency in his special branch of knowledge, including his acquaintance with his cognate "minor" field, finally is assessed by written and oral examinations.

Discussion

The granting of advanced degrees, other than the M.D., for graduate clinical work in the medical specialties has been criticized unfavorably by some. As a rule this criticism is leveled by faculty members of schools which do not offer graduate degrees but which provide residency training more or less identical with that of programs which lead to a degree. The views of some of these critics may be reflected in the comment made by Lewellys F. Barker in 1902, when he said:[2] "It is a rather prevalent opinion that the reason the philosophical faculties of universities have been regarded as of higher standing than the professional faculties and the faculties of technical schools is to be found entirely in that aristocratic prejudice which favors traditional 'learning' and holds itself aloof from science, and especially from science as applied in professional and industrial life."

Apparently the academicians of old would have had difficulty in understanding any present hesitancy to accord the professor of medicine the same privileges in graduate school

as those granted to the professor of history or the professor of languages. According to Steven D'Irsay,[3] St. Isidore of Seville, who summarized the educational and cultural views of the early medieval era, assigned "to medicine the task of continuing the work of the liberal arts. . . . It is thus that medicine is said to be second philosophy. Both disciplines require the whole man. For the one heals the soul, and the other the body." D'Irsay continued, "In other words: mediaeval man conceived of medicine as a means whereby to integrate his knowledge of the outside world, to approach thus the ideal of education . . . which was the ideal of the well-rounded and clearly informed person . . . and finally, whereby to be able to work actively and usefully."

Is the clinician at the bedside who studies the intricacies of electrolyte balance any less entitled to wear the cap and gown than he who studies the use of pronouns by Chaucer, or he who inquires into the stresses induced in suspension bridges by high winds? The inferiority complex concerning graduate clinical work, whether it is called graduate education or graduate training, is voiced, publicly at least, as far as I can ascertain, primarily by medical men; it is not entirely the product of the attitude of their colleagues in other fields of learning.

In 1917 Horace Arnold, then dean of the Graduate School of Medicine of Harvard University, said,[4] "It may safely be assumed, without discussion, that medicine also is a proper field of learning in which to grant advanced degrees; and that such recognition of special ability or knowledge in the medical profession would be of benefit to the public." He proposed that the degrees master of science and doctor of philosophy be given for training, in special fields of medicine and surgery, to candidates who fulfilled requirements of a grade and quality similar to those demanded in other fields of graduate study; he advocated, further, that the field of specialization be named on each diploma.

As Dean Elias P. Lyon, of the University of Minnesota Medical School, ably stated,[5] our idea is that the medical specialist can be taught in the same way" [as the chemist, the historian, the expert in agriculture]; "and what we call the Minnesota plan is merely the application of the ideals of the graduate school to medical education." He then went on to show how graduate medical training compares with graduate training in other fields of endeavor, as concerns organization, faculty, research, training in collateral fields, examinations, and in particular as regards the individuality of the work and the informality of the student-teacher relationship.

We all look askance, and rightly so, on the granting of a graduate degree for the mere submission of a thesis at the close of a period of routine clinical residency training. Clinical training, to be truly graduate training, should "discipline the resident in scientific attitudes toward health and disease," [6] and should enable the graduate to begin the practice of a clinical specialty in a scientific manner without supervision.[7] If the clinical portion of graduate medical education is to be accepted for credit toward a degree, it must be equal in all respects to programs leading to a degree which are offered in other graduate departments. In other words, it must have as its aim "the advanced training of men and women for service and leadership in state

and country, and the promotion of research resulting in contributions to knowledge by faculty and students in an atmosphere of inquiry." [8]

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Teaching of the Clinical Specialties

JOHN E. DEITRICK

RESIDENCY AND fellowship programs provide practically all of the experience, training and education of young physicians in the clinical specialties today. Hospitals, through their staff members, are directly responsible for the training and teaching of these specialties, and medical schools participate in this responsibility to the extent that they control the appointment of the staff members of the hospitals offering residencies and fellowships. Although I do not have statistics on the actual number of residencies in hospitals supervised by medical schools, from a perusal of hospitals approved for residency training I would estimate that medical schools exert direct influence or control in more than half of all residency programs. In spite of this fact, the educational opportunities and the quality of teaching received by residents and fellows varies markedly.

If education is to play a major role in specialty training, there are certain essentials which should be fulfilled.

The first is that members of the hospital staff have the desire, the time and the ability to teach. This is much more important than a highly organized and formalized program of education in which much of the teaching responsibility falls to a director of graduate medical education or of internship and residency training.

The second educational essential for specialty teaching is that the residents or fellows have their daily or weekly work so organized that time is allowed them for careful study of their patients and for them to refer to the medical literature pertaining to the patients' illness. The presentation of patients at staff conferences for discussion and criticism by

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a group of older physicians is excellent training for the younger men.

A third basic element is that the resident or fellow should be given responsibility under supervision. Young men usually develop their capacities more rapidly when given responsibilities to the limit of their knowledge and ability. Perhaps this requires the greatest wisdom and judgment on the part of the physicians responsible for training in the specialties. This aspect of specialty training also raises the difficult problem of the participation of private patients in residency training. Almost invariably the resident is not given the responsibility for making decisions on private patients that he is allowed to make on a teaching ward service. He may be helping to care for the patients of a dozen or more physicians with whom he has personal contact only two or three times per week and with whom he often communicates by means of the telephone or by notes on the patients' charts.

The last point is teaching of the application of the basic sciences to the specialties. Some specialty boards require fixed basic science courses of a definite content. However, the sciences are generally best taught at the clinical level by their actual use in the study and treatment of patients and in clinical research. When a resident or fellow helps to carry out measurements of pulmonary function, or makes actual observation and measurements of the effects of the steroid hormones on metabolic processes of the body, or measures the effect of isotopes on bone marrow activity or thyroid function, he is applying physics, chemistry, physiology and often histology and is forced to become more intimately acquainted with many of their fundamental principles. Young physicians trained in the specialties under such conditions as have been described might be expected to continue as students for the remainder of their careers, requiring very little formalized postgraduate work.

However, many, and I imagine it is a fairly large percentage of hospitals approved for residencies, cannot provide all the elements essential for this type of specialty education. They provide experience and a certain amount of technical training but they lack teachers and the residents are used primarily for the care of patients. The hospitals, in an attempt to offer some education, may arrange to pay an educator or a medical school to provide some formalized instruction.

The large teaching hospitals themselves may encounter some difficulty in offering good education and training in the specialties. This is due to the rapid growth of the specialties and subspecialties. For example, the resident in general surgery may have considerable difficulty obtaining any training and instruction in gynecological surgery and realizing his deficiencies, may surreptitiously exchange patients with the resident in gynecology. In medicine, it may be necessary to rotate residents through cardiology, chest diseases, gastroenterology, neurology, hematology, etc., if the resident is to gain any familiarity with the methods and tools for studying patients which these subspecialties tend to isolate. Most of the simpler tools utilized by these subdivisions are essential for a good internist. Not only are patients and the diagnostic tools isolated in special clinics, but ward patients are also being isolated on cardiac wards, chest wards, hematologic wards and gastrointestinal services. In fact it

is not too unusual to find that the specialists in charge of these services are unable to perform an adequate or fairly complete physical examination. It is entirely possible that this degree of subspecialization may force us into a form of rotating and vibrating residency.

The Role of Clinical Investigation in Graduate Medical Education

RAYMOND D. PRUITT

As MEDICAL EDUCATION in this country has moved toward maturity and toward refinement of its ends, the role of the clinician as an investigator has achieved increasing prominence and respect. In fact, if concern is appropriate, and usually it is, its object should be the devotion to research which possesses the mind and spirit of the graduate student in medicine, to the impairment on occasion of his perception that the common goal of clinical investigation and medical education always should be the better care of those who are ill. Having recognized that, like nearly all else which engages our interest, the virtues of clinical investigation may become vices if carried to excess, let us turn to a consideration of certain relationships between clinical investigation and education of the graduate student of medicine which more commonly pertain.

The divisions under which this discussion might be formulated are three. First is the role of clinical investigation in the education of the graduate student as viewed by the student himself; second, consideration of the same issue from the standpoint of a member of the graduate school faculty and, third, some reflections on the nature of the end product: the benefits which may accrue to society as a consequence of indoctrinating the graduate student in clinical investigation.

Graduate Student

From the standpoint of the graduate student entering the field of clinical investigation, there are at least three general directions in which he may proceed. First, let us consider the situation of the student assigned for six to 12 months' study in the field of surgical pathology. He may undertake investigation of a problem which deals with some relatively minute area in that field; for example, the incidence of recurrence of carcinoma of the stomach in a selected series of patients. He will carry forward that study to the best of his

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ability within a limited time and will perhaps arrive at some results which are not particularly revolutionary in character; we wouldn't anticipate spectacular results from such a study, and if any appeared, their accuracy would be subject for careful scrutiny in an area so carefully explored by earlier investigators. What the student is undertaking, basically, is an exercise in the field of clinical investigation and we are hopeful that from his experience he will derive certain benefits.

In the course of this symposium, the statement has been made that medical education at best is predominantly a survey course, and this I think applies within the graduate as well as the undergraduate field. At some point along the educational pathway the individual should have opportunity to do more than carry out a survey. By confining himself to a subject of limited scope, he may achieve knowledge in depth. He will become, let us hope, a better critic of all he encounters thereafter because he realizes certain of the pitfalls which are common to projects in research whatever may be their nature.

Let us turn to the second direction in which the student may proceed. He may become part of the team which is carrying out highly technical clinical investigation. An example of this would be his participation in the work of a cardiovascular laboratory staffed with highly trained personnel and replete with the latest in instrumentation—gadgetry if you will, but gadgetry productive of results immediately applicable to patients. This student, through experiences as one of his team, may come to realize something of the nature and complexity of modern clinical investigation and may learn also techniques which he can carry out and apply in the care of patients in centers other than the one in which he is being trained.

The third type of investigation which the student may undertake is that which might be described as a lonewolf performance. In this instance, the individual, through his own ingenuity and imagination, or with the help of one of his teachers, may have come upon an idea which he feels deserves investigation. Within the institution of which he is a part, no other investigator has explored the field and established basic techniques. Hence, the student has to set out on his own to find ways of investigating his particular problem. This type of clinical investigation probably is best reserved for the unusual student, one who may have within him, as identified either by himself or his instructors, the capacity to go on into research as a career. Upon the foundations laid during his period as a student investigator this career might be fashioned, but its fashioning will entail additional study in the basic sciences and further association with centers of research where knowledge in the desired field has been developed most extensively.

Faculty Member

From the standpoint of the faculty member, the problems which arise from an effort to make clinical investigation a part of graduate medical education are well, perhaps painfully well, defined. The mere provision of subjects for clinical investigation may constitute a major undertaking as, for example, to a surgical pathologist under whose direction 10 or 20 graduate students may be working for the comparatively short span of six months. Furthermore, if this instructor or professor

is to provide the type of criticism which is desirable, he must actually work at the problem with his student, become versed in its details and bring himself to a point where he can do more than read through the resulting thesis or the clinical article and offer a brand of criticism which is necessarily superficial. He must actually live a part of this research as does the student who makes the observations; this is indeed a demanding thing upon the teacher, and may well rob him of time which he would rather devote to efforts more in line with his own wishes and his own thoughts.

The teacher of clinical investigation has particularly the responsibility of directing the efforts of the student in presentation of data. We would all recognize that the capacities of most medical men to present even a simple factual account of their experiences have not been developed highly. As R. M. Hewitt[1] has observed, the scrupulous honesty with which these men handle a clinical problem, they seem to ignore in the presentation of written data. They may fail to paraphrase accurately, they may quote without giving credit to their authority, they may do any one of a number of things which to the scholarly mind are indeed sins of the first order, and yet be totally blind to the fact that they are committing them. Perhaps the origins of this disorder lie too deeply embedded in the educational experiences of the graduate student to be uprooted during a brief exposure to the disciplines of clinical investigation, but where could respect for the truth and its truthful expression be indoctrinated more appropriately?

Nature of Results

What can we hope for as the product of these efforts which are expended by the student and by the instructor? Desirable consequences may develop in the case of the man who goes into the practice of medicine and who never again does any clinical investigation of consequence. Society may benefit by his being a more competent practitioner than he otherwise would have been, a man who has a more discerning approach to the evaluation of all that will be produced during his lifetime within the field of medical investigation.

Second, a clinician may be evolved from this training who, to the general good, will pursue as an avocation his activities as a clinical investigator. In this respect, let it be noted that the nature of research within the field of medicine is changing. No longer can a physician take a hundred clinical records and, during the crowded hours of his daily existence, review them with the reasonable hope that he will derive the materials from which significant clinical advances are formulated. He must have certain basic attachments within the field of clinical investigation, specifically within the laboratories of the institution where he functions, if he is to hope to integrate with his clinical career the responsibilities of an investigator. Within our institution at Rochester, we have observed that clinicians who have spent six months, nine months, preferably a year or longer, in one of the laboratories of basic science devoted to clinical problems, and who have been encouraged during the months and years they have remained with the staff to go on working with the investigators who spend full time in that laboratory, are able to keep alive their curiosity, to retain their grip on complex problems, and to produce a type of work which is worthy of the designation of "clinical investigation."

A third way in which mankind may be the beneficiary when students are encouraged to enter clinical investigation is that some may have within them the capacity for research of the highest order. These individuals may have gone through the routines of medical education without having had the opportunity of setting out on their own to undertake the solution of a particular problem. The occasion of such an undertaking may provide for them an experience akin to that of which Keats wrote in his sonnet, "On First Looking Into Chapman's Homer."* A new world may open before these men as it did before Keats, and they may find it a world which absorbs them as none other ever has. From such an experience may emerge an individual disturbed by the relentless surging of an aroused curiosity, an individual who welcomes the opportunity to devote his resources of time, of energy, and of imagination to a lifetime of clinical investigation.

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*"Then felt I like some watcher of the skies
When a new planet swims into his ken;
Or like stout Cortez, when with eagle eyes
He star'd at the Pacific—and all his men
Look'd at each other with a wild surmise—
Silent, upon a peak in Darien."

Private Patients for Residency Training

LOWELL T. COGGESHALL

I SHOULD LIKE to make clear a point of view which admittedly is not original but is certainly one that bears repetition—the prime requisite of a truly successful plan of instruction for residents is not dependent upon the availability of any particular class of patients, hospitals of the latest design with sumptuous living quarters for the resident staff, large stipends or an elaborate training program systematized to the latest detail. Too often programs or practices are inadequate not because they were unsound but because the intent or ideals of the men behind them were lacking. Conversely, many are successful not because of uniqueness or diversity but because any system would have succeeded with the kind of teachers involved. There are many different, excellent and varied training programs, but the common denominators of each are teachers of ability and integrity who regard their teaching role as an opportunity rather than as an assigned responsibility too often sought for its prestige value.

The utilization of the paying patient for teaching residents is not new. However, this practice in many places remains limited and for the most part constitutes a minor part of the program as contrasted to the use of the indigent or so-called "clinical" patient. The trend towards the use of the teaching patient has shift-

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ed rapidly during the past decade. Many institutions that restrict teaching to primarily those who are charity patients are now faced with a real problem in not having at their disposal a sufficient number to conduct a satisfactory residency training program. The reasons for this are many, but foremost is probably the sustained prosperity of the country with an accompanying increased emphasis on plans designed to protect the individual against medical costs. For example, in July of 1953 there were 87 million people, or 57 per cent of our population, holding some type of health insurance prepayment plan. And 74 million, or 48 per cent of the people, had some form of protection versus professional fees. These figures represent a 75 per cent increase in the past decade alone. Naturally, the curve will flatten as the saturation point is approached and probably 85 per cent of the total population would be a reasonable guess as the maximum. Further increases will come from non-grouped individuals, elderly semi-indigent individuals and changes in plans liberalizing the various arrangements. Also, as the government proposes increased benefits, for example reinsurance or insurance for catastrophic illness, there is immediate response from private agencies offering more liberal terms. Further, the expanded Hill-Burton hospital program is providing space for many patients who formerly went to the teaching institutions.

Without further supporting evidence, I should like to turn to the question of utilization of the paying patient—whether partial, complete or deluxe—as a subject for instruction for medical resident, or for student, or for professor for that matter. I should like to define the paying patient a little more precisely because there are different meanings in different places. The term pay patient, to me, includes all who pay a sufficient sum directly from their own resources to a hospital, physician or to a plan from their income to be a factor in their personal economy. Excluded are the charity, the 25 cents per visit, or those who "pay as they can and forget it" group.

My remarks are primarily concerned with experiences at the University of Chicago Clinics, which in 1927 started with a complete whole-time staff, but otherwise in the conventional manner, for the utilization of both paying and charity patients, the latter to be utilized primarily for teaching. Early financial reverses of the country and the university changed the plan almost immediately, so that from the outset every patient admitted to the clinics was utilized for teaching purposes and today each is so informed on admission. The university hospitals depend primarily on patient income. Approximately 15 per cent are charity patients as far as the individual is concerned. However, the resident or attending staff rarely knows which patient is charity and which is full pay since the hospital is not equipped with large wards and there is relatively little difference in accommodations. After almost three decades of experience, neither the administration nor the staff would wish it changed, and we look upon the original necessity for using the paying patient for teaching purposes as a fortunate incident rather than as a handicap.

It is our experience that: (1) the patient as a teaching subject has a feeling of participation and realizes he is likely to receive a more thorough examination, carefully considered diagnosis and adequate treatment as a subject of study and as a teaching example; (2) the resident,

knowing that the patient has a financial stake in his medical care, is less likely to order a wholesale series of expensive laboratory tests and diagnostic procedures, but usually selects those which seem to be the most pertinent, as there is a financial matter with which he, in dealing with the patient, must be concerned.

The resident staff prefers this group because the members represent a cross section analogous to those he will see in his own practice after his formal training is completed. As we all know, dealing with indigent patients alone often leads to distorted ideas about the relationship of the doctor to the patient and community. A comparison of inquiries from both the attending and resident staff reveals almost a unanimous opinion that greater cooperation is obtained from the paying patients than from the indigents in all respects. They are more faithful in their return visits, and as a group they are more cooperative in clinical research practices. Also, a higher percentage of autopsy permits are obtained from the families of this group than from those who are in the hospital on a charity basis.

In my opinion, the utilization of the paying patient for clinical research and teaching has much in its favor and should be practiced wherever possible. There is no universal pattern of implementation, and adjustments to meet the local situation are necessary. Medical care and education today are too expensive to justify large hospitals with only relatively few beds available for teaching.

From experiences gained at the institution I represent, I would say that the practice of utilizing paying patients for teaching residents should be looked upon with favor and instituted wherever possible, and should not be regarded as a practice the medical educator must face only as a last resort. To me, the fact that medical education at its onset was almost totally concerned with the indigent patient is no longer a valid reason to maintain the practice.

University-Sponsored Affiliated Hospital Residency Programs

CLARENCE DE LA CHAPELLE

IN THE CHAPTER on the "Relation of Hospital and Medical School" in the Report of the Commission on Graduate Medical Education, published in 1940[1] under the title, "Graduate Medical Education," the following statement gives us a rather succinct resume of the residency problem 15 years ago:

"At the beginning of the 20th century, universities assumed little or no responsibility for the educational standards of the medical schools. As

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medical schools have increased their educational requirements, most of them have become integral parts of the universities. The weaker schools have disappeared from the picture. Graduate medical education is today in the same position that the medical schools were in 35 years ago. As the work offered in the residencies becomes of graduate degree calibre, there will be a closer affiliation of the residency with graduate schools or medical schools of the universities. This university support of educational standards will materially strengthen the educational content of the residency."

In the chapter on "Residency—A Graduate Discipline," we find the following: "The residency should be considered as a graduate discipline in contradistinction to the internship, which should be more closely identified with undergraduate education. All residencies should include work in the basic science fields, and, therefore, hospitals offering residencies should make such training available in the hospital or should have an affiliation with some medical school in which these basic sciences can be given."

When the Commission on Graduate Medical Education, created by the Advisory Board for Medical Specialties, was organized in 1937, only 10 years had elapsed since the Council on Medical Education and Hospitals issued its first list (in 1927) of approved residencies.[2] The number of approved residencies in 1937 was still quite small, approximately 3,202 offered by 438 hospitals.[3]

At present there are 24,741 approved residencies and fellowships available in 1,186 hospitals in the United States.[4] The greatest increase was during the past decade, 1945-54, when residencies increased from 7,666 to 24,741.[4] These figures are significant not only in terms of medical care, but particularly in relation to medical education. They represent an increase of more than 300 per cent in the number of physicians participating in graduate education during the past 10 years. During these 10 years the number of internships increased from 8,429 to 10,542.[4]

Needless to say, university-sponsored affiliations are not possible for all the 1,186 hospitals which are approved for residency training. Nevertheless, about one-fifth of these hospitals have some sort of affiliation with a medical school or a university. Approximately 220 hospitals are affiliated with some 76 medical schools for undergraduate clinical clerkships,[4] but how many also have residency training programs under the sponsorship of these schools is not entirely clear. However, it is possible to state that 61 medical schools are responsible for the instruction of 5,439 residents,[5] or less than 20 per cent of the total number of residents and fellows. It is of interest to note that although 684 hospitals in which council-approved internship and residency programs are being conducted offered training in both categories, some 503 hospitals offered residency training only. It is probable that in the latter hospitals there is little or no association with teaching centers.

Responsibilities

Many young physicians devote two to four years in residency training programs after completion of an internship, and many serve two years or more in military service, which in only some instances is comparable to residency training. In other words, it is not unusual for many physicians to spend as much time or even more in obtaining medical training for a ca-

reer in practice or in teaching and research after graduation from medical school than prior to it. This fact alone is sufficient reason to have universities, through their medical colleges or medical centers take, whenever possible, some responsibility for the education of these physicians during this long period following graduation. By so doing, the quality of advance training will be kept high, preferably at a level of the highest standards of the medical college years.

I am not advocating control of graduate medical education by the universities or the medical schools for I believe hospitals should carry a considerable share of the teaching obligations. However, the trend of recent times has been towards supervision and control of graduate medical education by the specialty boards and other various accrediting agencies. This is not desirable because these organizations are not principally educational bodies. As Deitrick and Berson state in their recent monograph on "Medical Schools in the United States at Mid-Century,"[6] "In duration and content, the programs are to a large extent determined by agencies outside the medical school; the schools themselves have not been sufficiently closely knit, or demonstrated sufficient strength, to assume the authority and the responsibility for setting their own standards in this area."

They continue, "The medical schools and their teaching hospitals took the leadership in establishing the residency system of training; they should reestablish this leadership. And they should make sure that the training in their hospitals is clearly defined as to purpose and educational opportunity, and that it is conducted accordingly. The young men in such programs should be permitted to advance as rapidly as their individual abilities will allow. Clear distinction should be made between salaried staff officers employed to provide services, and interns and residents serving in programs in which education is the primary objective."

It would seem desirable to have graduate medical education the combined responsibility of the hospitals and the medical schools. Fortunately, more and more hospitals, even those that do not have the guiding influence of an affiliated medical school, are recognizing the educational function of residency training. Ideally, all of them should have a common purpose, namely to offer experience, both educational and practical, at a sufficiently high level to qualify young physicians to enter a specialty or a career in teaching or research.

N.Y.U. Program

For some years New York University, through its medical faculties, has sponsored house staff educational programs, including residency training, in two groups of hospitals. One group, consisting of voluntary and municipal hospitals in the New York metropolitan area, participates in undergraduate teaching, mainly in the form of electives or clinical clerkships as well as in graduate and postgraduate programs of medical education. About 200 members of our clinical faculties hold staff appointments in one or more of these affiliated hospitals and actively participate in their teaching schedules. The second group consists of suburban and rural hospitals which are associated with the medical center through its regional hospital plan, which has been in operation since 1947. Members of the faculties of the two medical schools of the university make regularly scheduled visits to

these regional hospitals to participate in the intern and resident training program and in conferences.

Only one of these regional hospitals, the Hunterdon Medical Center, Flemington, N. J., participates in undergraduate teaching, being responsible for the training of approximately 12 to 18 elective students each year from four medical colleges within a radius of 75 miles. All the department heads of this institution are full-time specialists and hold faculty appointments in New York University. They are responsible for the teaching of undergraduate students, interns, residents and indirectly the continuing education of the attending staff of general practitioners.

The residents from both groups of affiliated hospitals spend part of their time at the Post-Graduate Medical School of the university, taking advanced work in the basic sciences which are not available in their own hospitals. Because of the needs of the military forces, the number of residents available for such training has been reduced to one-half of what it was prior to 1950.

Some of the residents of the medical center of the university, including its many divisions in Bellevue Hospital, rotate for various periods of their training through some of the affiliated institutions.

There are many other excellent university-sponsored affiliated hospital residency programs throughout the county, including the well-known example of the programs in those Veterans Administration hospitals which function under the aegis of the deans committees. Because of this relationship to medical schools, these residency training programs are considered among the finest in the United States and, therefore, very much sought after by young physicians who have decided on a career in one of the specialties of medicine or surgery.

Although, as already mentioned, it would be desirable to bring all approved residency training programs under university teaching discipline, such an ideal is out of the question from a practical point of view. The mere fact that the number of hospitals (1,186) approved for this form of graduate medical education is so large, when compared to the small number of medical schools which are able to assume some sort of sponsorship for this type of training, is presumptive evidence why such an ideal cannot be fulfilled. One can hope, however, that more and more universities, through their medical colleges or medical centers will assume more responsibility for this very important phase of medical education.

There is still need for greater interest in graduate medical education by the medical schools, to the end that ultimately every young man seeking advanced training can be assured a well-planned educational experience comparable with the disciplines of formal university graduate study.

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The Medical Centers in Graduate Medical Education

JOSEPH C. HINSEY

MY SUBJECT IS the center's role in graduate medical education. The use of the term "medical center" has really grown by leaps and bounds, sort of like Topsy. Some of them are located on a university campus; and some are in metropolitan areas, separated from the parent universities, sometimes by as much as 250 miles as ours is. They may be in the same city and comparatively near by, as the one at Washington University in St. Louis.

This medical center may include a medical school, a teaching hospital and possibly a nursing school. Gradually, with the development and need for more extensive training in the health sciences, we have added to the medical school and nursing school and the teaching hospitals, dental schools, pharmacy schools, schools of public health, schools of hospital administration, schools of social service and schools for the paramedical sciences. Of course, these all deal with the health sciences, and it has helped university administrators many times to sort of simplify the management of this by getting somebody in to try to run the whole operation as a vice president or director. As a matter of fact, it can prove to be an effective way of dealing with the whole administrative problem.

However, as much advantage as there may be in the development of these medical centers, there have been certain disadvantages which have come. And one of the disadvantages has been that there has been a greater load placed upon the medical faculty in these large centers, and in some instances the school of medicine has come to play a relatively minor role compared to the major role that it seems to me that it should play. However, that is a matter of administration and many times it is a matter of adequate financing. Too many times the overall administration of the university endeavors to cover the basic science teaching in the whole gamut of these health sciences with one faculty. If there is enough money, that may work out quite well, but it is a subject to which Dr. Deitrick and Dr. Berson have given a great deal of consideration in their report from the survey on medical education.

The graduate student who is at work on a university campus gains a great deal from the cultural milieu of the university, the fact that he has contacts with other graduate students in his own field and in other related fields. He can attend conferences and special exercises and take courses in other disciplines. There is something in the general university atmosphere which he assimilates as he goes through as a graduate student. As the graduate schools have increased in size, the significance of this cultural milieu has decreased in many cases, and the graduate work has become very stereotyped and dogmatized and placed within narrow cubbyholes contrary to the more general type

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that has been given in earlier days of our graduate schools.

In the health center, graduate medical students—and I am thinking of the resident type particularly here—gain a great deal from this environment in which they live. If their center happens to be in a general university, it is even more rich. Even away from the university, the graduate medical student has the advantages of the medical library, of many conferences and lectures in the center. He is involved in relationships with and teaches medical students and other house officers, he is related to other health sciences, some of the phases of the dental school, and in nursing and in hospital administration at times. This resident of ours gains a great deal by being in that type of environment, where there are many other people who are in the educational process.

I would like to emphasize that this isn't the only way that a very high type of graduate medical education can be conducted. There are institutions separated from a medical center and even separated from a university that do very fine work. There has been a tendency, however, for many of the specialty hospitals to gather within the confines or general area of the medical center because of this environment and the advantages that are available.

Significant Problems

There are several significant problems, it seems to me, that really require the most serious consideration when we think of graduate medical education and the resident in the educational process. First of all, with the increasing length of the residency we have added additional time upon the required educational experience of the resident and in so doing we have increased the expense to him and in many ways have raised certain problems to him in his everyday life. There can be no complaint about the increase in the length of the residency if the time of increase is used effectively in the educational process, but this leads me to the next difficulty that I have seen, and that is the increase of the service load that has come upon these graduate students on our clinical services. Dr. Deitrick and others have discussed the need for the time for research, for clinical investigation, for library work and for contemplation and study of patients. The pressures that I have seen in some of our medical centers and in some of our residency programs have been such that the resident gets up early in the morning and he's dogged until late at night, and he has little time to carry out the real educational parts of this program.

I would plead for a greater consideration of the economic problems of the resident, for the decrease of the service load upon him which gives to him larger responsibilities in the care of private patients—not that it isn't a good experience, but it has been used in many hospitals far beyond the requirements of the educational experience. And I would like to emphasize what seems to me to be a very important thing in this experience of the graduate student as he is in our medical centers, the need to keep always under consideration the requirements of the individual and the development of the individual. It is easier to develop requirements and whole sets of programs, than to plan for each one of these people and his development in sound education.

If we can get the right kind of people chosen in our residencies and, as Chester Keefer has pointed out, if

we can put those people of ability in contact with able teachers, then in the presence of the patients and the other facilities that are provided, whether it be in a center or in a teaching hospital, we can expect to get a good result from the educational process. But if we try to deal with the teaching as a mass phenomenon, as has taken place in a number of our graduate schools and has taken place in a number of our residency programs, I am fearful as to what the end result in some of these programs can be. But we must keep in mind that these people are students, and we must also keep in mind that they are students who need to have individual development, initiative and responsibility.

"Disease will Diminish"

FIVE YEARS AGO 166 medical schools were to be counted in the United States; today 148; 43 were closed and 25 new ones organized. Of the 43 closing, 16 went out of existence entirely while the balance merged and formed 12 large, well-equipped and efficient schools . . . Then is it not wise to send out the warning to various educational institutions, the great dimunition of disease and the curtailment of the general practitioner's income? . . . Ten years ago the income from typhoid fever alone was about $1,500 per year; today it will average $300.—Dr. G. Milton Linthicum, president, Medical and Chirurgical Faculty of Maryland, in *Proceedings of the 20th Annual Meeting,* Association of American Medical Colleges, March 1910.

Editorials and Comments

The 1955 Teaching Institute

PLANS ARE WELL under way for the Association's third Teaching Institute, which will be held at Swampscott, Mass., October 19-22, 1955, immediately preceding the 66th Annual Meeting of the Association. This Institute will focus on anatomy and anthropology.

Although its general pattern will be similar to that of the two previous Institutes, the conference has been reduced in length this year from five to three and one-half days. Attendance will be by invitation only. One teacher from the department of anatomy of each medical school in the U.S., Canada and the Philippines has been invited, and there will also be a few representatives of the clinical specialties. In selecting participants, the committees have considered all facets of the anatomical disciplines in an attempt to achieve a balanced representation.

The Planning Committee for the 1955 Teaching Institute is: William U. Gardner, professor of anatomy, Yale, chairman; Sam L. Clark, professor of anatomy, Vanderbilt; Edward W. Dempsey, professor of anatomy, Washington (St. Louis); Louis B. Flexner, professor of anatomy, Pennsylvania; Normand L. Hoerr, professor of anatomy, Western Reserve; Gabriel W. Lasker, assistant professor of anatomy, Wayne; Horace W. Magoun, professor of anatomy, California (Los Angeles); Russell T. Woodburne, professor of anatomy, Michigan; George Packer Berry, chairman, AAMC Committee on Teaching Institutes and Special Studies, and John M. Stalnaker, secretary, AAMC Committee on Teaching Institutes and Special Studies.

The seven topic areas for discussion at the Institute, and the subcommittee which will be responsible for each, are:

THE ROLE OF THE ANATOMICAL DISCIPLINES IN MEDICAL EDUCATION: Normand L. Hoerr, chairman; Richard J. Blandau, professor of anatomy, Washington (Seattle); Sydney M. Friedman, professor of anatomy, British Columbia; Paul G. Roofe, professor of anatomy, Kansas; Ernst Scharrer, professor of anatomy, Einstein.

PREPROFESSIONAL PREPARATION FOR ANATOMY: Louis B. Flexner, chairman; W. Montague Cobb, professor of anatomy, Howard; Roy O. Greep, professor of dental science, and dean, Harvard School of Dental Medicine; Karl E. Mason, professor of anatomy, Rochester; Marcus Singer, associate professor of anatomy, Cornell University (Ithaca); William L. Straus Jr., professor of physical anthropology, Laboratory of Physical Anthropology, Johns Hopkins University.

ANTHROPOLOGY AND MEDICAL EDUCATION: Gabriel W. Lasker, chairman; J. Lawrence Angel, associate professor of anatomy and physical anthropology, Jefferson; Stanley M. Garn, chairman, physical growth department, Fels Research Institute; William W. Greulich, professor of anatomy, Stanford; Benjamin D. Paul, lecturer on social anthropology, Harvard School of Public Health.

INSTRUCTION AND LEARNING IN ANATOMY: Edward W. Dempsey, chairman; Russell J. Barrnett, associate in anatomy, Harvard; Sylvia H. Bensley, associate professor of anatomy, Toronto; Jack Davies, assistant professor of anatomy, Iowa; Arnold Lazarow, professor of anatomy, Minnesota.

THE STIMULUS OF RESEARCH INTERESTS ON TEACHING IN ANATOMY: Horace W. Magoun, chairman; Thomas F. Dougherty, professor of anatomy, Utah; Don W. Fawcett, professor of anatomy, Cornell (after July 1); Joseph E. Markee, professor of anatomy, Duke; Daniel Mazia, professor of zoology, University of California (Berkeley); James L. O'Leary, professor of neurology, Washington (St. Louis); Donal Sheehan, professor of anatomy, New York University.

THE RECRUITMENT AND EDUCATION OF TEACHERS OF ANATOMY: Sam L. Clark, chairman; Barry J. Anson, professor of anatomy, Northwestern; Philip B. Armstrong, professor of anatomy, State University of New York (Syracuse); Arthur Kirschbaum, professor of anatomy, Baylor; Albert I. Lansing, professor of anatomy, Emory.

TEACHING OPPORTUNITIES AND RESPONSIBILITIES IN CLINICAL AND POSTDOCTORATE YEARS: Russell T. Woodburne, chairman; Donald Duncan, professor of anatomy, Texas; W. Henry Hollinshead, professor of anatomy, Mayo Foundation; Ernest Lachman, professor of anatomy, Oklahoma; E. Carl Sensenig, professor of anatomy, Alabama.

A Problem in Cooperation

THE FINAL AUTHORITY in determining the fitness of a physician to be licensed and to practice his profession in a given state is the board of medical examiners of that state. To be sure, most of these boards delegate the authority to inspect and accredit the various American medical schools to the Council on Medical Education and Hospitals of the American Medical Association and to the Association of American Medical Colleges, and admit to their licensing examinations any physician who has graduated from any American medical school which has the approval of those two bodies. But by the nature of the licensing examinations, which the state boards of medical examiners prepare, those boards to a considerable extent determine what the content of the curriculum will be in every medical school in the United States.

As the field of medicine has broadened its scope, increased its depth and multiplied its unavoidable complexities, it has become apparent to all concerned that mere coverage of a specifically limited set of accepted medical facts is no longer adequate medical education, and the mere testing of the acquirement of such knowledge is not adequate determination of professional competence. The objectives of both medical teachers and medical examiners are therefore undergoing revolutionary changes and since changes in the thinking of one group so directly affect the other group, the necessity for coordination between the two groups is urgent.

Medical educators are now attempting to inculcate in their students not only a *knowledge* of essential medical facts, but certain *skills, attitudes, ethical principles* and perhaps most importantly certain *habits* of history taking, physical examining and using current literature which should serve to keep the individual both as student and as physician always learning and always alert to new approaches to his patients' problems.

Medical examiners too, often times with the help of professional testing services, are attempting to make their examinations broader, more practical and more searching. Objective type examinations and practical, oral examinations are being used in some instances to supplement the traditional essay type examinations.

The evaluation of the professional competence of physicians trained in foreign medical schools presents a problem even more difficult than that relating to our American trained physician for the reason that adequate data regarding the teaching program of many of the foreign medical schools are not available. Evaluation procedures even more searching than those presently in use with American graduates will have to be developed if the competent physicians are to be culled out from the incompetent ones with little or no reference to their medical school origin.

With both medical education and methods of medical examination in active transition and with the United States having become the mecca for foreign physicians seeking advanced training, the need is obvious—medical educators and medical examiners must counsel together, plan together and work together in order to meet the changing needs in an effective and well-coordinated manner.—D.F.S.

Symposium on Graduate Medical Education

THE PAPERS ON graduate medical education in this issue represent the views of the individual authors and to a lesser extent the opinions of members of the former Committee on Graduate Medical Education of the Association of American Medical Colleges. Dr. de la Chapelle, Dr. Corbin and Dr. Deitrick were members of that committee, whose functions now have been transformed to the Committee on Internships, Residencies and Graduate Medical Education.

Practical and immediate problems concerned with the internship are time-consuming and demand constant attention. It is to be hoped that these matters will not prevent the newly formed committee from devoting a proper amount of attention to those very important divisions of its functions concerned with residencies and graduate medical education.

Deans are understandably more concerned with the immediate problems of their undergraduate medical schools than with the education of their students who are undergoing specialty training subsequent to graduation. The total time devoted to consideration of the subject of graduate medical education by this Association during the past 35 years, as reflected in the Association's annual programs and the contents of its Journal, supports this statement.

Thus, in this new day, doubtless medical educators will realize the great need for devoting energy and interest to the postinternship training of physicians which is the equivalent of that brought to bear on undergraduate training.—K.B.C.

Films That Teach the Dynamics of Living Tissues

THE STAINED SECTION and the gross specimen have justified their continued use in teaching histology. However, the section is static and cell structure and action of the specimen are too minute to be observed without optical aid and a speedup of action. The development of realistic concepts of living tissues demand both magnification and intelligible

motion. The means are at hand for making this possible. Phase-contrast microscopy provides magnification, and time-lapse motion picture photography telescopes action so that it is observable.

The work of the Tissue Culture Laboratory of the University of Texas, Medical Branch, under the direction of Dr. Charles M. Pomerat, represents scientific efforts which have resulted in the laboratory growth of human tissues and, in addition, the successful photography of the structure and activity of these tissues. The potential use and importance of these motion picture films in teaching pathology and anatomy at the undergraduate level is obvious.

Abbott Laboratories of North Chicago are supporting a three-year project of the Medical Audio-Visual Institute to produce a series of short teaching films for first and second year medical students. The willingness of the Tissue Culture Laboratory to offer its large file of recorded materials for adaptation to teaching and the generosity of Abbott Laboratories in making production possible will result in a most significant contribution to medical education. The time-lapse phase contrast photography will give a dynamic idea of the living cell that is impossible to obtain by any other method.—J. E. F.

Our Readers Write

Dear Editor:

I am glad to accept your invitation to state my views as to how the utilization of medical manpower might be improved.

The present method of calling young physicians after one year of internship for military service has many serious, if not dangerous, drawbacks. First, it furnishes the Armed Services with a large number of young physicians who have had only one year of training and many of these may have had a rotating internship in which no more than three months of medicine or three months of surgery were available to them as training for handling major surgery and the most complex problems in medicine.

Second, calling the interns at the end of one year is a serious interruption of the care in civilian hospitals, especially in the hospitals charged with taking care of the indigent sick. The one year of training does not permit a staggered internship and it does not permit sufficient fundamental training or any specialty training to enable many of these young physicians to meet the emergencies that they are called upon to meet in military service. The call at the end of one year does not permit any training in pathology, radiology, the medical and surgical specialties and other disciplines. These men, also, by having their training broken, do not get the same sequence of training that was formerly enjoyed by young physicians, and many of them, as a result of two years in military service, do not take additional years of training after returning. Thus many going into practice are not adequately trained. The method of selecting men after one year of internship, therefore, results in less well-trained, and some inadequately trained, men for the military service,

less well-trained men for civilian hospitals and practice and, as a consequence, a lower grade of medical care for both.

The plan announced recently by the Department of Defense allows a certain number of interns to state a preference for a second year of training but it has been stated that less than one-half of the interns expressed the preference for a second year and of that number less than 50 per cent would be granted the opportunity. It was also stated in this plan for the second year training that the men would be chosen by drawing lots. While this plan may be an improvement in one way, i.e., by allowing some men two years of training, this is more than neutralized by the method of selection used.

This method deprives the civilian hospitals of the right to select their second year residents, a right they have exercised always and which must not be surrendered. It also makes it impossible to select for additional training those interns best qualified for further training. Therefore, it will deliver to the military services after the second year men with two years of training. It does not assure them of the best physicians with that training because of the method of their choice, namely, by lot. A method somewhat similar was used during World War II to select students for medical schools and it is generally agreed among medical educators that the caliber and morale of students entering medicine dropped to an all-time low.

Another very serious drawback that results from the selection by lot is the fact that it deprives the faculty and staffs of teaching hospitals of the opportunity of selecting the young physicians best equipped to become future teachers and investigators in medicine. These men must be selected with the greatest care by the faculties of medical schools. The selection by lot will surely lead to a deterioration of faculties and lowered quality of medical care both for the Armed Services personnel and for the civilian population. It must be obvious that the certain deterioration of medical school faculties, as a result of this system, will lead to a poorer quality of teaching in medicine and this in turn must result in a lower grade of medical care.

Finally, as evidenced by the selection by lot system in World War II, this method of selection lowers the morale of students, resident staffs and faculty, by depriving those who perform best of the right to advance, the right to choose the medical school or hospital for their education, and finally the right of faculties to choose those best fitted for advancement. We cannot afford to forget this lesson so painfully learned in World War II to realize the crippling blow that it, if adhered to, will give the standards of medical education and medical care in this country.

Certainly a better method can be found for selecting those men who should have additional training. It is also possible to improve upon the training, increase it in length and at the same time furnish the Armed Services with the same number of men they are getting today, the difference being that they will be adequately trained to render the highest grade of medical care to our military and civilian population.

The following suggestions furnish a basis for greatly improved medical care for the military and civilian populations, assuming that all medical school graduates are required to take one year of internship.

1. By *gradual* steps make it possible for 70 per cent of all graduates

to take two years of internship or residency before going into service.

2. By *gradual* steps make it possible for 45 per cent to take a third year of residency training.

3. By *gradual* steps make it possible for 20 per cent to take a fourth year of residency training or specialty training.

4. Restore immediately to civilian hospital staffs their right to select, on the basis of performance, certain of their interns and residents for second, third and fourth years of training.

It is emphasized that this plan should be introduced *gradually*. The results to be expected from this plan are as follows:

1. The Armed Services would get much better trained men with various degrees of training and some with training in specialties, capable of handling complicated problems in medicine and surgery.

2. This in turn would result in a tremendously improved care to the sick and wounded in the Armed Services, and greatly improved care for the civilians.

3. It would preserve the right of the hospital staffs and faculties of medical schools to select and train those men best fitted for further clinical training, for teaching, research and practice of medicine. *This is imperative.* Medical faculties cannot be selected from candidates drawn by lot.

4. The Armed Services would receive the same number of men, but instead of the great majority having had a one year internship, and thus being inadequately trained to render the type of care our military and civilian populations are entitled to, some would have had two, three or four years of training, which would equip them for giving the best care.

It should be kept in mind that the plan of calling the great majority of physicians after one year of internship was adopted to meet the Korean emergency. That emergency, on the surface at least, is over, but others confront us and probably will continue to for an indefinite time.

It is high time, therefore, that we begin to plan for the best method of training of our medical students, interns and residents over the long term for the future, with a view to improving the medical care of our military and civilian populations.

The plan adopted at the Korean outbreak served its purpose and saw us through that emergency, but it is no longer defensible, nor is the more recent plan of choice "by lot." Both plans are interfering needlessly with graduate medical education and even threaten to do serious harm at the undergraduate level and to the fundamentals of medical education. A plan to improve graduate education and insure better medical care for the Armed Services and for civilians is proposed. It is recognized that it must be worked out carefully and *gradually*, but if introduced *gradually*—perhaps over a five-year period—it will furnish the Department of Defense with the same number of physicians it is getting now and they would be adequately trained to furnish our military personnel and civilian population with the type of medical care they have a right to expect. Only so can the high standards of medical care in this country be safeguarded and improved. Under the present plans, standards of medical education and medical care are seriously threatened.
—*Joseph T. Wearn, dean*, Western Reserve University School of Medicine.

NEWS DIGEST

Schering Awards

The opening of the 10th annual Schering Award competition for undergraduate medical students has been announced by Dr. Robert W. Burlew, chairman of the award committee of the Schering Corporation, Bloomfield, N.J.

Three $500 first prizes and three $250 second prizes are offered in 1955 for the best manuscripts on current concepts in management of osteoporosis, prevention and treatment of blood transfusion reactions and recent trends in the clinical use of adrenocortical steroids.

Literature containing entry forms is being distributed to the medical schools. Entries should be submitted by June 1, and manuscripts mailed by October 1.

Catholic Hospital Convention

Recent trends in medicine, new community attitudes toward social problems and the hospital's responsibility in meeting the changing concepts of health and disease will be discussed at the 40th anniversary convention of the Catholic Hospital Association of the United States and Canada. The meeting will be held at the Kiel Auditorium, St. Louis, May 16-19, with an expected attendance of 6,000.

A symposium on "Health of Religious" has been scheduled, and sectional and special meetings will be held during the convention on public relations, personnel, maintenance, dietary services and obstetrical nursing.

Rockefeller Foundation Directors

Responsibility for the program of the Rockefeller Foundation has been placed in charge of a new five-man board of directors. They are: Dr. Norman S. Buchanan, social sciences; Dr. John C. Bugher, medical education and public health; Dr. Charles B. Fahs, humanities; Dr. J. George Harrar, agriculture; and Dr. Robert S. Morison, biological and medical research.

This new move will eliminate previous divisional units, and is intended as a step toward greater flexibility. Dr. Alan Gregg will continue as vice president on special assignments.

American Heart Association

The American Heart Association is holding its annual meeting at the Jung Hotel in New Orleans, October 22-26.

Meetings sponsored by the Council on Community Service and Education and the Council on Rheumatic Fever and Congenital Heart Disease will be held October 23-24, to be followed by the scientific sessions and the general assembly.

Those wishing to present papers at the scientific sessions should submit abstracts of no more than 300 words before July 1 to the medical director of the American Heart Association, 44 East 23rd St., New York 10.

Surgeon General Nominee

Maj. Gen. Silas B. Hays (AMC) was nominated by President Eisenhower to be surgeon general of the Army, effective June 1. General Hays, who has been deputy surgeon general for the past four years, succeeds Maj. Gen. George E. Armstrong, who is retiring from active duty.

Ancient Medical Book

Yale University has announced the acquisition of a 1,378 page volume, the Codex Paneth, printed 600 years ago and representing a cross-section of all medical knowledge available up to the start of the 14th century.

This volume is believed to have been the entire medical library of the University of Prague when it was founded in 1347. It was presented to Yale by 60 associates of the library. Many of the hand-drawn color illustrations show surgical instruments which are still being used in only slightly modified form. It seems probable that the manuscript was commissioned in Bologna on behalf of the group of physicians who founded the University of Prague medical faculty.

Medical Equipment Inventory

A detailed inventory of the equipment needed to set up a medical school is now available through the efforts of WHO and UNESCO.

This reference manual includes the latest apparatus and material for teaching anatomy, bacteriology, biochemistry, histology, pathology, pharmacology, physiology and hygiene and public health.

This volume "Inventories of Apparatus and Materials for Teaching Science," Part 5, Medical Sciences, of Volume III, can be obtained from the Columbia University Press or the United Nations Bookshop.

Graduate Training Awards

Mead Johnson and Company have announced the establishment of annual awards for graduate training in several of the larger fields of medicine. The company's role in the award program will be limited to provision of funds to the professional societies in the various fields, whose scholarship committee will select the candidates and administer the awards.

The American Academy of General Practice, the American College of Physicians, the American Academy of Obstetrics and Gynecology, the American Academy of Pediatrics and the American College of Surgeons will be the organizations provided with funds under this new program.

Lederle Research Fellowships

The Lederle Laboratories Division of the American Cyanamid Company has made available student research fellowships to medical schools throughout the United States and Canada.

The selection of the students to receive these awards, which do not exceed $600 per year for any one student, are to be made by the dean of the medical school.

The fellowships are intended to relieve part of the financial burden of students who desire to devote their summer vacations to research in the basic or preclinical medical sciences.

College Briefs

Alabama

Dr. JOSEPH F. VOLKER, dean of the school of dentistry, has been appointed director of research and graduate study. DR. THOMAS O. PAUL has been promoted to professor of ophthalmology and chairman of the department.

Dr. ELMER L. CAVENY, who retired after 25 years of service in the Naval Medical Corps, was appointed professor and chairman of the department of psychiatry. Dr. Caveny has been head of the psychiatry and neurology branch of the Navy Department.

The new professor and chairman of the department of microbiology is Dr. THOMAS FITE PAINE JR., formerly associate professor of bacteriology and internal medicine at the University of Michigan Medical School.

A grant of $97,000 has been received by Dr. HOWARD L. HOLLEY, associate professor of medicine, for a study of joint fluid changes in rheumatic diseases. Part of the five-year grant was used to purchase an ultracentrifuge.

Albany

The retirement, effective June 30, of Dr. ARTHUR KNUDSON, professor and chairman of the department of biochemistry, has been announced. Dr. Knudson joined the college in 1914, and has been chairman of the department since 1921. He also served as associate dean from 1943 to 1952.

He will be succeeded by Dr. JOHN A. MUNTZ, who is at present associate professor of biochemistry at Western Reserve University School of Medicine.

Chicago Medical

Dr. DOUGLAS D. VOLLAN, formerly assistant secretary of the Council on Medical Education and Hospitals of the American Medical Association, has been appointed dean of the faculty of the medical school, effective April 1.

The appointment of Dr. DAVID M. COHEN as chairman of the department of dermatology and syphilology has been announced. He was formerly acting head of the department.

Dr. PHILIPPE SHUBIK, coordinator of oncology, has been awarded $25,000 by the National Cancer Institute and $5,508 from the American Cancer Society of Illinois for continuation of his cancer research program. Dr. HANS ELIAS, associate professor of anatomy, has also received a grant from the National Cancer Institute of $11,620, a two-year renewal of his study of liver cancer.

Columbia

The Fannie E. Rippel Foundation of Newark has awarded a $100,000 grant to Columbia University for research on cardiovascular-renal diseases and cancer.

The grant will be used primarily for basic research in cardiovascular diseases, conducted by the departments of medicine, pediatrics and surgery of the college of physicians and surgeons.

Duke

Duke Hospital's physical therapy division will double its 1955-56 training program through a $12,349 grant from the Department of Health, Education and Welfare's vocational rehabilitation office.

The grant will provide additional teaching staff and equipment, enabling the university to train 24 instead of 12 physical therapy students. HELEN KAISER is the director of the program.

The university has received $30,000 in American Heart Association grants for five research projects. The projects will include studies on the part played by the kidney in water and heat balance in the body, chemical processes in the human heart, effects of stimulation on the blood vessels of the lung, regulation of blood circulation and blood circulation and chemical activity of the liver.

Florida

The J. Hillis Miller health center of the university has received a grant of $143,650 from the Commonwealth Fund of New York City to support studies in the general field of medical education and medical care in a university setting.

Georgetown

A library of Catholic medical history will be established at the university medical center, with the support of a $5,000 grant from the Raskob Foundation.

Dr. WILLIAM CHRISTOPHER STADIE, professor of research medicine at the University of Pennsylvania School of Medicine, will receive the Kober Medal for 1955. This medal is awarded annually by the Kober Foundation at Georgetown to a member of the Association of American Physicians who has contributed to the progress and achievement of the medical sciences or the medical profession.

Harvard

Dr. LERCY D. VANDAM has been named anesthesiologist-in-chief at Peter Bent Brigham hospital and associate professor of anesthesia at the medical school. He will head the

department of anesthesia at the hospital and will be concerned with clinical activities and research, as well as teaching medical students.

Illinois

Studies on internal medicine and infectious diseases will be carried on by the department of medicine with a $30,000 grant-in-aid from the American Cyanamid Company, Lederle Division. The grant is under the direction of Dr. HARRY F. DOWLING.

Johns Hopkins

Dr. W. BARRY WOOD JR., professor of medicine and head of the department at Washington University School of Medicine, has been named vice president of the university and the university hospital.

He will be concerned with the coordination of activities of the hospital, the school of medicine and the school of hygiene and public health, and will also serve as professor of microbiology.

Medical Evangelists

Thirty-six acres of land one-half mile south of the Loma Linda campus were recently purchased by Dr. GEORGE JOHNSTONE for the use of the school of tropical and preventive medicine. The utilization of this land for buildings and experimental purposes is now being considered.

An ichthyologist research team of CHESTER LINDT, DOUGLAS HORTON and photographer DON OLLIS returned this month from a three-month expedition to the Galapagos Islands, Ecuador, Colombia and Peru. Underwater color films of toxic fish were taken for further study.

The college was named recipient of nearly $250,000 in a trust and annuity fund left by Mrs. MINNIE HITTINGER. The funds will be used to further progress in the building program on both campuses.

Dr. MERVYN G. HARDINGE and Dr. IAN M. FRASER of the department of pharmacology will study the mechanism of action of antitumor compounds known to react with the thiol group, with the support of a $17,150 grant from the National Cancer Institute.

Minnesota

The American College of Surgeons has awarded a $20,000 research grant to Dr. FLETCHER A. MILLER, research fellow in surgery, for a three-year study. Dr. Miller has developed the use of the mass spectrometer to determine the level of carbon dioxide a patient is producing during surgery.

Dr. EDWARD A. BOYDEN, emeritus professor of anatomy, was chosen president-elect of the American Association of Anatomists at the 68th annual session in April. Dr. Boyden is currently visiting professor of anatomy at the University of Washington School of Medicine.

Missouri

Dr. WALTER J. BURDETTE, professor of surgery at Louisiana State University School of Medicine, will become professor of surgery and chairman of the department at the school of medicine, effective July 1.

Dr. FREDERICK C. ROBBINS, professor of pediatrics at Western Reserve University School of Medicine, and 1954 Nobel Prize winner in medicine and physiology, visited the campus recently and gave two lectures on the current status of poliomyelitis.

NYU-Bellevue

A grant of $100,000 has been awarded to the university by the Fannie E. Rippel Foundation of Newark for support of research in the institute of cardiovascular diseases and the cancer institute of the Bellevue medical center, and for the purchase of related equipment. The Fannie E. Rippel Foundation was established under the will of the late JULIUS S. RIPPEL, in memory of his wife. Mr. Rippel died in 1950.

A full-time eight-week course in industrial medicine for physicians will be given at the postgraduate medical school in September and October.

The subjects will include organization of an industrial medicine de-

partment, preventive medicine in industry, clinical aspects of occupational disease and toxicology and industrial hygiene for the physician.

North Dakota

A total of $20,700 in new grants for research has been received since December 7, 1954. This amount includes $12,000 from the Public Health Service to Dr. GLENN L. HOFFMAN, department of bacteriology, for his study on parasites of fish, and a grant from the American Heart Association to Dr. H. E. EDERSTROM, department of physiology, for work on the effect of chemicals and hormones on isolated blood vessels.

Dr. OLAF LARSELL has been appointed visiting professor of neuroanatomy. Dr. Larsell was formerly professor of anatomy at the University of Minnesota Medical School.

Northwestern

The Samuel Sackett Foundation for the study of rheumatic fever and its related diseases has announced that Dr. GENE H. STOLLERMAN has been named to direct rheumatic fever research in the department of medicine. The research program was made possible by the income from a $500,000 endowment providing for the research on a permanent basis.

Dr. Stollerman is presently medical director of Irvington House, which is affiliated with the New York University College of Medicine and Bellevue hospital. He will begin research at the medical school July 1 with laboratory facilities provided in the new Morton Medical Research building.

Ohio

A $500,000 rehabilitation and chronic disease center is near completion at Children's hospital, the college of medicine's training and research center in children's diseases. This center will be opened this month, and will provide entertainment equipment, schooling and facilities for 100 patients.

DR. PETER A. VOLPE has been named administrator of the health center. Dr. Volpe was formerly manager of Hines Veterans Administration hospital in Maywood, Ill.

Oregon

Two alumni received awards of meritorious achievement at the medical school alumni association meeting April 18-20. Dr. WILLIAM F. AMOS, '90, and Dr. CHESTER G. HALL, '04, both physicians in Portland, Ore., were presented with the certificates for 50 or more years of service to the profession and to the public.

Other features of the three-way program were reunions of the classes of '28, '33, '40, '44, '45, '48 and '50, fraternity dinners and tours of the university hospital which will be opened officially in January 1956.

Grants and gifts totalling more than $110,000 have been received since March 4. The largest of these grants was $45,578 from the National Advisory Cancer Council to Dr. EDWIN E. OSGOOD, head of the division of experimental medicine, for research on the chemotherapy of leukemias and lymphomas. Another grant for $29,160 was received by Dr. ARTHUR TUNTURI, assistant professor of anatomy, from the National Institute of Neurological Diseases and Blindness. Dr. ROY L. SWANK's project on the use of plasma proteins in cerebral vascular disease will be supported by a $19,800 grant from the Life Insurance Medical Research Fund. Dr. Swank is head of the division of neurology.

Pittsburgh

Dr. JACK D. MYERS, formerly associate professor of medicine at Duke University School of Medicine, has been appointed professor and chairman of the department of medicine at the school of medicine.

Dr. Myers' chief research interests are in areas of circulatory system and heart disease. He is currently the national secretary for the American Society for Clinical Investigation.

Saint Louis

The private library of the late Dr. ROBERT SCHLUETER, a member of the

faculty of the school of medicine for more than 30 years, has been donated to the university by his widow.

The collection contains first editions of Dr. WILLIAM BEAUMONT'S "Experiments and Observation on Gastric Juices," based on the famous study of Alexis St. Martin's stomach wound. The library also includes Greek and Latin dictionaries with corrections made by Dr. Schlueter.

Texas—Galveston

Dr. T. G. BLOCKER JR., professor of plastic and maxillofacial surgery at the medical branch, has resigned his position as dean of the medical faculty. Dr. Blocker is expanding the research program in plastic surgery at the John Sealy hospital.

Dr. CHAUNCEY D. LEAKE, professor of pharmacology and toxicology, and of the history and philosophy of medicine and public health, has resigned his position as executive director of the medical branch, which he has held since 1942. Dr. Leake will continue to act as director until his successor is chosen. He plans to devote his attention to pharmacology and the history of medicine.

U. of Washington

Dr. TED A. LOOMIS has been appointed state toxicologist and associate professor in the department of pharmacology. Dr. Loomis has been on leave of absence with the Army, and will return to the university July 1.

MRS. MARY TSCHUDIN has been named dean of the school of nursing. She was formerly assistant dean and acting dean of the school.

The state legislature has voted a bonding authority for the construction of public institutions, and the school of medicine is to receive approximately $2,500,000 of state funds. Together with $6,500,000 of other available funds, this will make possible the construction of the university hospital.

Virginia

A $32,500 fellowship as an established investigator for the American Heart Association has been awarded to Dr. PHILIP Y. PATERSON, for a five-year period beginning July 1. He will investigate experimental allergic brain damage and some of the ways bacterial toxins cause damage to living tissue.

Dr. JOHN FRANCIS DAMMANN JR. has been appointed associate professor of surgical cardiology in the department of surgery, effective January 1, 1955. He was formerly assistant professor of pediatrics at the University of California at Los Angeles.

Wayne

Gifts and grants in the amount of $80,145.50 have been received by the university. One of the largest grants was for $14,981 to the school of medicine from the Public Health Service, National Institutes of Health, for investigation of hormonal functions. An award of $11,885 has also been given for research in fractionation of platelets and blood coagulation.

Woman's Medical

Dr. PHYLLIS A. BOTT, professor of physiological chemistry and chairman of the department, has been awarded a grant of $12,000 from the Life Insurance Medical Research Fund for the study of electrolyte excretion by analysis of samples collected from individual nephrons of the kidneys of small animals. This is a renewal of previous grants.

Audiovisual News

The Film Pamphlet

R. C. MacKeith and C. E. Engel

The number of films available to the medical teacher is being enlarged at an ever-increasing rate, but their usefulness is diminished by lack of information about their content, for few films are accompanied by adequate information.

At the 1953 Congress of the International Film Association, the medical group of this organization recommended to producers of medical films[1] that they give detailed information about their films. They suggested, for example, that the purpose of the film and the audience for which it is intended should be emphasized.

Without knowledge of these facts it is difficult for the individual teacher to select film material for his lectures. He has to rely very largely on published reviews, appraisals and critical catalogues. Yet balanced appraisals are difficult to make if the intended purpose and audience are not known. The lecturer often orders films whose titles are promising, only to find they are quite unsuitable when projected. This procedure is expensive, time-consuming and altogether discouraging.

Further information about film content and subject matter can be of great value to both lecturer and student. Many silent films are still being made and of necessity rely to considerable extent on the spoken commentary of the teacher who uses them. This makes for the flexibility of approach and treatment which is so essential a quality of academic teaching. It has also been shown that even sound films are more effective as teaching aids if they are preceded by an introduction and followed by discussion.[3, 4]

The teacher is obviously in a much better position to introduce a film, comment during the projection and discuss it afterwards if he is well informed on the contents and subject matter.

Perhaps the most important use of films is for the presentation of examples of visible signs on which diagnosis is based.[5] For this and many other purposes short films are commonly used, often in the form of film loops.[6] It is highly undesirable to include in subtitles all the clinical data about the previous history and later outcome of the demonstrated case.

Thus a printed or mimeographed sheet containing further information about the material shown in the film can be very useful. It helps the teacher to select the film he needs, and makes it easier for him to use the film well. Where a film shows a rare condition which has been outside the teacher's personal experience, he may be grateful for notes summarizing knowledge of the condition. If these notes also give brief details of what the film contains they may help the teacher in his comment on the film, although it remains axiomatic that no teacher ever shows a film to a class without first viewing it himself.

What of the student? There are many things he is expected to commit to memory which films cannot teach and which therefore should not be portrayed on celluloid. Such matter can with profit be contained

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in a leaflet which is issued to the student before or after the lecture. This pamphlet can also carry still photographs from the film, a description of the more important sequences and the lessons to be learned from them. The student will then have for his notebook an aid to his visual memory. When he goes through his notes for revision, the descriptive text of the film pamphlet will recall the visual sequences of the film.

Such pamphlets have been found particularly valuable as adjuncts to *case record, diagnostic* and *techniques teaching* films. A sample leaflet for a case record film is made up as follows: the front page carries a picture (of Thomas Guy) which is used for all pamphlets from Guy's Hospital as a distinguishing mark of the source. The remaining space is taken up by the title of the film, the departments responsible for film and pamphlet and the necessary technical data.

The inside lefthand page carries the relevant case history of the patient. The inside righthand page shows the contents of the film scene by scene, together with the titles. This is followed by the teaching points, explanatory anatomical diagrams and references for further reading.

Summary

Pamphlets which accompany films designed for teaching can help the lecturer in the selection of suitable visual aids. They help him to introduce a film, to comment on its contents during projection and to lead a discussion after screening. Such leaflets can be issued to the students before or after a lecture as an aid to his visual memory, and to provide relevant information which cannot be learned from the screen.

The layout and contents of a typical pamphlet are described.

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2. Rathbone, R. J.: "Film Appraisal by the Scientific Film Association," (1950) Photogr. J. 90B.

3. Project 10, "Instructional Film Research Program," The Pennsylvania State College.

4. "The Effective Use of Sound Films," Research Report 4, (1950) Commonwealth Office of Education.

5. MacKeith, R.: "Teaching Medical Diagnosis, The Use of Films," *The Lancet*, 1954, 404-406.

6. Collard, P. and Engel, C.: "The Short Film and Its Automatic Projection in Medical Teaching," *The Lancet*, 1954.

TV Demonstration at L.S.U.

The freshman class at Louisiana State University School of Medicine recently watched a television demonstration on nervous control of the dog heart and the nature of common cardiac arrhythmias, performed by Dr. A. S. Harris, head of the department of physiology. The demonstration was performed in a small laboratory and seen by the students in a nearby classroom by means of two 21″ receivers. Two departmental staff members assisted, Dr. George D. Davis at the camera and Dr. Raymond A. Russel in the classroom to relay suggestions and student questions to the laboratory.

Dr. Harris introduced the demonstration in person and following the demonstration there was a question and answer period through the intercom. In addition, the students were able to go directly to the laboratory in small groups in order to test for themselves specific stimuli and reactions.

This was one of a series of experimental programs carried out by the department of physiology to determine the effectiveness and instructional efficiency of TV for large classes. The basic equipment used includes a simple Vidicon type camera, a control panel and monitor, and two classroom receivers. All equipment used cost less than $3,000 and required no technical people other than regular staff members.

Mycology Teaching Aids

The Communicable Disease Center of the Public Health Service has produced a number of color filmstrips and slide sets for use as aids to instruction in medical mycology. The filmstrips depict the clinical aspects of certain cutaneous and systematic fungus diseases, the morphology of the tissue phases of the pathogenic agents, laboratory procedures followed in the diagnosis of the infections and the gross and microscopic characteristics of these molds when grown in culture. The two slide sets depict (1) the histopathology of the human mycoses and (2) the cultural and morphological features of a large group of saprophytic fungi frequently encountered as contaminants in the laboratory.

These visual aides, listed below, may be obtained on a short term loan basis, at no charge, from the Instructional Materials Distribution Unit, Communicable Disease Center, Public Health Service, P. O. Box 185, Chamblee, Ga.

1. "Laboratory Diagnosis of *Tinea capitis* in Children," (Microsporum Infections). FS* No. 5-127.0.
2. "A Mycological Slide Culture Technique." FS No. F-24.
3. "Laboratory Diagnosis of Trichophyton Infections, Part I, Ectothrix Infections of the Beard and Scalp." FS No. F-94A.
4. "Laboratory Diagnosis of Trichophyton Infections, Part II, Endothrix Infections of the Scalp." FS No. F94B.
5. "Laboratory Identification of *Coccidioides immitis*." FS No. F 116.
6. "Laboratory Identification of *Blastomyces dermatitidis*." FS No. F116A.
7. "Histopathology of Human Mycoses," 105 slides. Part I, Superficial Fungus Infections, FS and SS* No. F 13A; Part II, Cutaneous Fungus Infections, FS and SS No. F 13B; Part III, Subcutaneous Fungus Infections, FS and SS No. F 13C; and Part IV, Systemic Fungus Infections, FS and SS No. F 13D.
8. "Common Saprophytic Fungi," 173 slides. FS and SS No. S 170.

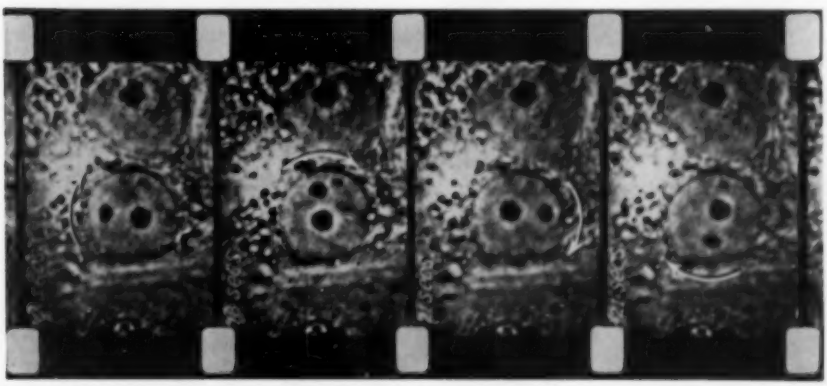
*FS stands for filmstrip; SS for slide set.

CDC Parasitology Films

The following short films produced by the Communicable Disease Center, Public Health Service, were contained in one program on the AV preview circuits for the medical colleges: "Ancylostoma Caninum in the Intestine of the Dog," "Infective Larvae of Ancylostoma Caninum" and "Erythrocytic Stages of Plasmodium Vivax." The following summaries are based on early appraisal forms returned by faculty members who previewed the films.

"Ancylostoma Caninum in the Intestine of the Dog:" *(5 min., b&w., sd., 16 mm., 1954.* Loan: CDC, Chamblee, Ga., Sale: United World Films, 1445 Park Ave., New York 29.)

One hundred and eight appraisal



FOUR FRAMES illustrating cell rotation. (Taken by Tissue Culture Laboratory, University of Texas Medical Branch. See *Editorials and Comments.*)

forms representing the opinions of 354 faculty members and 891 students gave this title the following overall ratings: Excellent, 56; Good, 40; Fair, 11 and Poor, 1.

It was indicated on 42 forms that this film should be part of the medical college library, while it was indicated on 49 forms that this was a film which they would want to borrow from time to time.

"Infective Larvae of Ancylostoma Caninum:" *(4 min., b&w., sd., 16 mm., 1954.* Loan: OCD, Sale: United World Films).

This title was given the following overall ratings on 67 forms representing the opinion of 205 faculty and 553 students: Excellent, 29; Good, 26; Fair, 10 and Poor, 2.

Of the 67 forms, 23 gave indication that this was a film which should be part of the medical college library, while 30 indicated that this was a film which they would want to borrow from time to time.

"Erythrocytic Stages of Plasmodium Vivax"; *(4 min., b&w., sd., 1954.* Loan: CDC, Sale: not available).

The following overall ratings were given on 64 forms representing 206 faculty and 645 students: Excellent, 21; Good, 33; Fair, 7 and Poor, 3.

Of the 64 forms, 23 gave indication that this was a film which should be part of the medical college library, while 33 indicated that this was a film which they would want to borrow from time to time.

The great majority of respondents indicated that these films were best suited for presentation as an integral part of instruction to medical students of parasitology rather than for introducing or reviewing a unit of instruction.

The most appealing strengths of films included the photography, the simplicity of the narration and the brevity of the films. The following comment is representative: "These films present, in an excellent way, subject matter which can in no other way be presented to a class of 100 students simultaneously." Some previewers felt, however, that each film was too short or covered too small a unit of instruction for medical school purposes: "Fragments shown of the organism's life and relationships are too small."

Summaries of Film Reviews

Industrial Dermatitis

30 min., b&w., sd., 16 mm., 1949.

To a Harley Street specialist comes biology student Miss Groves, with a bilateral dermatitis of the hands. The physician takes history, P.E. and patch tests to prove that lab formalin is the guilty chemical, and he educates his patient as he diagnoses. Later, in a medical school classroom (where Miss Groves is now seen as a student), the specialist discusses the anatomy of the skin, the nature of industrial irritants, and demonstrates by still photographs some of the results which occur from a variety of chemical and biological agents.

As a superficial survey of the problem of industrial dermatitis the film covers generalities and high points. Produced skillfully in the main, the production competence is wasted by a trite classroom lecturer-with-slides format, with an unconvincing duo of specialist and girl medical student as principal actors. Unfortunately, too, almost all the meat of the presentation consists of words plus a collection of not-too-analytical still pictures.

As an introduction to industrial dermatitis for college science student audiences, the film may transmit its key message. But it is too superficial for more sophisticated and advanced medical audiences. A film of the same name was produced in 1950 for the British Ministry of Labor and is distributed by the British Information Services. *D.S.R. and P.S., August 1954.*

Audience: College students of the medical sciences.

Production Data: Sponsor: Imperial Chemical Industries, Ltd., Manchester, England; **Producers:** Oswald Skilbeck and Seafield Head.

Distribution: (In U. S.) Imperial Chemical Industries, Ltd., Film Library, 521 Fifth Ave., New York 17, N. Y., (In Canada) Canadian Film Institute, 172 Wellington St., Ottawa, Ont., **Rental:** $3.

Book Reviews

Medical Treatment of Mental Disease

D. J. McCarthy and **K. M. Corrin**, with 8 contributors. J. B. Lippincott, Philadelphia, 1955. 622 pp. with index.

Any hope engendered by the title that the physician or medical student might find in these pages a well-balanced medical approach to the treatment of mental disease, encompassing all facets of medical knowledge and research is dashed in the authors' preface. Contradictions, profuse throughout the book, begin here: "Mental diseases are caused by physical disorders, and they respond to scientific medical treatment the same as all other diseases, etc."

Despite this categorical statement, the book is also dedicated to S. Weir Mitchell and his psychotherapeutic approach to patients, a dedication repeated many times throughout the book. Still further on in their preface, the authors proclaim that these patients must be treated as "medical problems, not as mental cases as in the past."

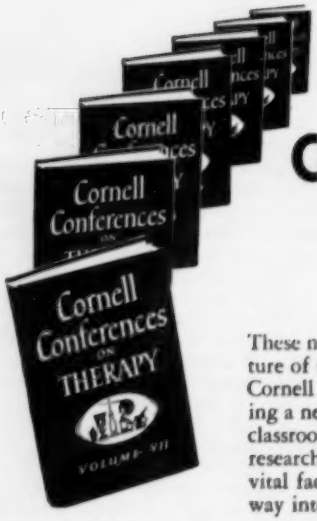
Besides such contradictions, the book suffers from poor organization. The title suggests that the book is about treatment, but the first 490 pages are devoted mostly to descriptions of psychiatric entities. These are difficult to follow because of the authors' arbitrary methods of classification and the frequent digressions into internal medicine and neurology, especially in the section on mental disorders of known etiology and pathology, which covers almost 200 pages.

In contrast, paranoid conditions and paranoia are allotted 12 pages. Schizophrenia is not given a whole chapter to itself but is included in Chapter 17 among the adolescent psychoses where two subheadings read respectively, "the simple, mild schizoid syndrome of adolescence" and "advanced schizophrenia." Despite the statement in the preface, the section covering adolescent psychosis, manias, depressions and paranoid conditions is called "mental disorders of unknown etiology, mechanism or pathology, but with consistent and uniform symptomatology." These four chapters cover 85 pages.

A few quotations will illustrate the hostile and unscientific tone that the text often assumes when describing the more severe forms of mental disorders. Under paranoid personality types, it is stated, "The paranoid personality is often apparently born suspicious and peculiar, and develops his paranoic personality with his mental and physical growth. He is a mental deviate, a defective (cracked) personality that remains the same throughout life." A subheading under adolescent psychosis called "splitting of the personality" includes the following statement: "The term schizophrenia means split-brain or a splitting or separating of the mind—the mental faculties or thought processes; essentially those elements which go to make up the personality." Further on one reads, "The mechanism of a split personality is founded on ill health, usually with depression and introspection. Any break in the personality disorders the entire personality. This is equivalent to the organic changes in the brain."

Depressions are categorized as follows: "The opposite of manic excitement—a decrease in all physical and mental activity in the emotional setting of profound sadness, usually with exhaustion. There is often present a physical-chemical-endocrine intoxication and general underfunction and inactivity of the organs and of metabolism." As to causation of depressions, the reader is again referred to mania, where he learns that the specific cause of mania is unknown but is possibly an imbalance in cortical stimuli and hypothalamic stimuli. "The most common apparent cause for the acute attacks," however, is said to be "an infectious-toxic state superimposed upon exhaustion, overwork." "Infection may be the exciting factor, either local as a pocket of pus in the prostate or more widespread throughout the body. Remove the toxic product and the excitement and the over-activity subsides."

The second chapter deals with causes of mental disorders, and here many of the well-documented physiological deviations from the norm occurring in psychiatric patients are cited, but also some



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data attributed to S. D. Ludlum, M.D., which have neither been published nor to the reviewer's knowledge been corroborated in any other laboratory.

Eight contributors are listed. No entire chapter is attributed to any of them. For instance, a section on child psychiatry and the family physician, written by R. M. Winlock, is included in the chapter on adolescent psychosis.

Many treatment suggestions dealing with neurological and internal medical illnesses underlying or complicating mental disorders are excellent and one can only wish that they were balanced by equally well-founded and erudite dissertations on psychotherapy. The authors state in the preface that they have made no attempt "to include the many purely psychological and dynamic aspects of psychiatry which tend to carry medical psychiatry far beyond its normal clinical bounds." As the reviewer reads it, apparently a neurosis is not a mental disease, or psychiatric. According to the authors they seem to be outside the purview of medical treatment.

This book attempts to set the clock back, and does justice neither to medicine, nor to psychiatry, nor to Weir Mitchell.

Stephen Fleck, *Yale Psychiatric Institute*

Animal Agents and Vectors of Human Disease

E. C. Faust, M.D. Lea & Febiger, Philadelphia, 1955. 660 pp. with index.

The title well describes the scope of this book by Dr. Ernest Carroll Faust of Tulane University. This volume is produced with the clarity so characteristic of the author's presentations. Dr. Faust's new book is well organized from the standpoint of utility and readability. Because of its reasonable size and broad coverage it promises to be a useful textbook for students of parasitology representing a broad spectrum of disciplines.

The introductory section of the book provides general information and valuable orientation to the subject. Other sections deal with major groups of parasites, such as protozoa, round worms, tapeworms, flukes and other helminths. One section is devoted to arthropods as agents and vectors and still another to other invertebrate and vertebrate agents of disease. The last section is concerned wth parasitologic diagnosis.

The book is illustrated with more than 200 photographs and drawings. Many of the latter are from the author's own pen. Color plates of the plasmodia would have been worth the cost in the reviewer's opinion, although the author's drawings illustrate the morphological characteristics, except color, very well. Students will undoubtedly appreciate the many useful synoptic tables included in the introductory section and elsewhere in the book as well as the summaries and the references to literature which conclude the chapters.

Harold N. Mozar, *Medical Evangelists*

Omphalosophy and Worse Verse

William Bennett Bean, M.D. Iowa City, Iowa, n.d. 50c.

Those who have enjoyed occasionally Dr. Bean's light verse on present day medical matters will be grateful to him that he has brought them together in this small volume. Those who do not know them yet will thus have a chance to become acquainted with them. They will be charmed by the author's wit and wisdom and find cathartic relief when he pokes fun at overspecialization, the ever-mounting flood of eponyms, and other weak spots of academic medicine. The *piece de resistance* of this anthology is Dr. Bean's little epic on the birth and growth of a new specialty, omphalology, ornamented with remarkable graphs.

Erwin H. Ackerknecht, *Wisconsin*

Books and Pamphlets Received

(As space permits, those with the greatest interest to our readers will be reviewed)

Fluoroscopy in Diagnostic Roentgenology

Otto Deutschberger, M.D. W. B. Saunders Co., Philadelphia, 1955. 729 pp. with index.

A Textbook of Physiology, 17th edition

Edited by **John F. Fulton,** M.D. with collaborators. W. B. Saunders Co., Philadelphia, 1955. 1252 pp. with index.

Primary Anatomy, 3rd edition

H. A. Cates and **J. V. Basmajian,** M.D. The Williams & Wilkins Co., Baltimore, 1955. 328 pp. with index. $5.75.

The Physiological Basis of Medical Practice, 6th edition

Charles Herbert Best, M.D. and **Norman Burke Taylor,** M.D. The Williams & Wilkins Co., Baltimore, 1955. 1224 pp.

Surgery of the Small and Large Intestine

Charles W. Mayo, M.D. The Year Book Publishers, Inc., Chicago, 1955. 330 pp. with index. $9.

Abstracts and Excerpts

Brody, Irwin A. **The Decision to Study Medicine.** "The New England Journal of Medicine," Vol. 252, No. 4, January 27, 1955.

Experts in vocational guidance have designated certain attitudes and aptitudes as prerequisite for the prospective physician, and the general public entertains its own notions of what prompts a young man to study medicine; but it may be of interest to ascertain what certain outstanding doctors have said in their autobiographies concerning the circumstances and motivations that surround their choice of medicine as a career.

A study of medical autobiographies shows that many doctors are convinced that they entered their profession because of a special calling. The study of Albert Schweitzer presents in a tone of modest simplicity an unequivocal account of the power of humanitarian ideals to inspire one to undertake the study of medicine. At the age of 21, he resolved not to accept his happiness as a matter of course but to give something in return for it. He decided to continue to live for his musical and theological studies until he reached the age of 30 and to devote himself completely from that time forward to the direct service of humanity.

John M. T. Finney, the American specialist in visceral surgery who introduced the operation of gastroduodenostomy, states that the study of medicine was "the one thing and the one thing only" that he ever had in mind as his life's work. He expresses pity for his less fortunate friends who were forced to make a decision concerning their future careers.

Although many doctors, such as those mentioned above, believed that a special calling drew them into the medical profession, the majority testify in their autobiographies to the lack of any particular vocation for a career in medicine. A basic interest in general science lay behind the choice of many in this group. This primary love of science led some of them to devote their lives to medical research and teaching rather than to medical practice.

A factor of outstanding importance in calling the attention of young men to science in the latter part of the last century was the interest aroused by Darwin's theories of evolution and the passionate controversy excited by them. Sigmund Freud recounts his early fascination with Darwinism, which, he says, inspired him as an extraordinary advance in the understanding of the world and greatly influenced him to become a medical student.

Among doctors who discount all claims for a special calling for medicine, many ascribe their choice of a career to the direct influence of a particular person. The father very often plays a leading role in determining the future career of his son.

Many physicians who do not attribute the choice of their profession to the influence of any particular person describe their decision as a process of eliminating other attractive but unpromising possibilities until medicine was left as the only choice. Sir Robert Christison, who became professor of materia medica at the University of Edinburgh, wanted to study engineering, but his father thought poorly of the opportunities in this profession, and young Robert had to settle for a medical career.

Some men in their autobiographies frankly admit that their choice of medicine was based on the prestige or lucrativeness of the profession. To judge, therefore, from the evidence of medical autobiographies, relatively few physicians are driven from the very beginning by an altruistic desire to be healers. Even many of those who claim a special calling confess that they are unable to explain why medicine so powerfully attracted them; among physicians, men and women, who deny a special calling for the profession, the reasons given to account for their choice run from a basic interest in science to the direct intervention of heaven.

The perusal of medical autobiographies, however, reveals the fact that doctors—even those who claim to have drifted into medicine by the merest chance—usually develop a deep and

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abiding love of medicine as their medical knowledge increases and as they come into contact with patients.

Schottstaedt, William W. **An Integrative Approach to the Teaching of Preventive Medicine.** "Southern Medical Journal," Vol. 48, No. 2, February, 1955.

It has become apparent in recent years that a new approach to the teaching of preventive medicine is necessary. With improvement in general sanitation and with the development of vaccines, antibiotics and chemotherapeutic agents, the problem of communicable and infectious diseases has become one of lessening importance. The students' interest in sanitary measures and in discussion of the epidemiology of infectious diseases has declined correspondingly. When the principles of epidemiology and public health measures are presented in these terms they are apt to seem dull and uninteresting to medical students.

There has been a corresponding increase in the importance of chronic disease. This has brought an increased awareness of the importance of social factors in medicine. Specific therapy is a minor part of the care of a patient with a long-term illness. Much more important are problems such as family frictions arising as a result of the chronic illness of one of its members, the loss of productivity, financial crises, the need for prolonged treatment at home or in some institution, and the desirability of organized efforts at rehabilitation.

Methods which were perfectly adequate for familiarizing students with communicable diseases are wholly inadequate when one is dealing with chronic disease. Teaching must be revised to give more emphasis to social organization and the social and emotional problems faced by the ill. There has been a broadening view of the province of preventive medicine. It is no longer thought of in terms only of specific measures to prevent the occurrence of disease. It now has a wider scope. All measures designed to promote health in individuals and groups of individuals are viewed as preventive in nature. All activities which aid in early diagnosis and therapy are a part of preventive medicine, as are measures of rehabilitation.

A need is apparent, therefore, for a teaching method which will lay emphasis on these aspects of preventive medicine and on the care of the long-term patient.

At the University of Oklahoma School of Medicine, with the aid of funds from the Kellogg Foundation, a new program for the teaching of preventive medicine has been instituted. The curriculum of the senior year is constructed on a longitudinal system. Each student spends two days each week in the general medical clinics throughout the senior year except while on preceptorship. This allows the student to follow his patients throughout the senior year. In this way the student can become acquainted at first hand with the problems which arise in the care of patients with chronic disease.

Teaching in the medical clinic stresses both the therapeutic and preventive aspects of patient care. The interdependence of these two orientations to care is dear. Rehabilitation of the patient is discussed not only in terms of correction of gross anatomic defects or job placement to make allowance for specific physical disabilities, but also in terms of emotional rehabilitation in overcoming anxiety and tension aroused by the thought of returning to work after a prolonged absence.

In addition, each student visits one of the local health departments during his senior year. Two or three students go at a time and spend three consecutive days in this department. This allows personal contact and fosters a warm, friendly attitude between health department and student. Each student also visits the home of one of his patients. Emphasis is placed here on the immediate environment and the patient's family.

The interrelationships which all these varied activities have and the unifying concept which lies behind them is brought into clear focus in seminars and lectures held through the senior year. Emphasis is placed on the care of the long-term patient without ignoring the many other applications of preventive principles in medicine.

The Personnel Exchange

Faculty Vacancies

• Department of Pathology, University of Texas M.D. Anderson hospital and tumor institute, has openings for two or three senior pathologists from assistant to an associate level. Half of the individual's time can be spent on research and investigative work, the balance taken up with the usual service responsibility connected with a university teaching hospital. Address: William O. Russell, M.D., Pathologist-in-chief.

• PATHOLOGISTS: Positions available immediately for two assistant pathologists and one associate pathologist in a university teaching and cancer research center with 310 bed clinical facilities. Salary dependent upon qualifications. Address: V-28.

• RESEARCH ASSOCIATES: Postgraduate (M.D or Ph.D.) cardiovascular research and training program, supported by National Heart Institute and American Heart Association offered by departments of physiology and pharmacology, Medical College of Georgia. Stipend for one year program, starting July 1, 1955, is $3400 plus $350 for each dependent. Write Dr. W. F. Hamilton or Dr. R. P. Ahlquist, Medical College of Georgia, Augusta, Ga.

• PHYSIOLOGIST: Opening for instructor or assistant professor. Ph.D. or M.D. with research training. Preference for someone with medical school teaching experience and interests. Two-thirds of calendar year free for independent research. Address: Clarence A. Maske, Department of Physiology, University of Colorado School of Medicine, 4200 E. 9th Ave., Denver 20, Colo.

• ANESTHESIOLOGY RESEARCH FELLOWSHIP: Albany Medical College, for July 1, 1955. Training in cardio-pulmonary function laboratory, anesthesia research laboratory and experimental surgery laboratory. Subsidy of $3,000 to $3,600 depending on marital status. Address: J. Gerard Converse, M.D., Professor of Anesthesiology, Albany Medical College, Albany, N. Y., before April 15, 1955.

• ANATOMIST: Teaching duties mainly in microscopic anatomy. Prefer someone whose research interests are in histology or embryology. Salary and rank dependent on experience and qualifications. University Medical School, Pacific West Coast area. Address: V-29.

• M.D.—SCIENTIST: Wanted for staff appointment 1000 bed hospital; age preferably 30 to 40; minimum 2 years clinical experience diagnostic and therapeutic uses of radioisotopes. Excellent opportunity clinical research in academic atmosphere in completely equipped radioisotope research laboratory in medical center large city southwest U. S. Address: P. O. Box 17004, Houston 31, Texas.

• DIRECTOR RADIOISOTOPE UNIT: M.D., certified internist preferred. Splendidly equipped unit for clinical care of patients and research laboratory. Duties include administrative supervision, teaching in residency program, assistance other services in research. General hospital, 1000 beds, affiliated with medical college. Faculty appointment. Address: V-30.

• UNESCO has been asked to suggest candidates for the following posts abroad: Professorships in pathology, international medicine, surgery and ophthalmology (Tabriz, Iran). Professorships in physiology, chemistry, surgical dentistry and dental prosthetics (Baghdad, Iraq). Professorships in anatomy and physiology and lectureships in anatomy, physiology and pharmacology (Jerusalem, Israel). A number of professorships and lectureships in various preclinical subjects (Djakarta, Djocjakarta and others in Indonesia). Address: Enquiries and applications to UNESCO, Exchange of Persons Service, 19 avenue Kléber, Paris 16, France.

• DIRECTOR—MEDICAL EDUCATION: 750 bed nonprofit hospital with Protestant church affiliation desires services of physician with a background in the field of medical education with administrative ability to direct resident and intern program and to key continuing attending staff medical education. Excellent salary opportunity. Address: V-32.

• PHARMACOLOGIST: To assist in teaching of medical and nursing students and in general research activities of department. Faculty rank of instructor. Salary range $4,000-$5,000. Doctorate degree required. No research obligations involved, and good facilities will be available for personal research. Position may be available July 1-September 1, 1955, depending upon state of laboratory reconstruction. Address: Frank C. Ferguson Jr., M.D., department of pharmacology, Albany (N.Y.) Medical College.

• VIROLOGIST: Full-time faculty position in Eastern medical school department of bacteriology now occupying new laboratories for virus research, including facilities for tissue culture. Teaching of medical and graduate students. Time for research of own choosing. Rank and salary depend on experience and training. Address: V-33.

• FELLOW IN FORENSIC PATHOLOGY: Fully approved; complete facilities for training in pathology, toxicology and administrative legal medicine. Remuneration commensur-

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To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 185 N. Wabash Ave., Chicago 1, Ill., not later than the 10th of the month which precedes the month in which the listings will appear.

ate with training and experience. Reply: Department of Legal Medicine, Medical College of Virginia, Richmond, Va.

Personnel Available

• PEDIATRICIAN: Board eligible. Three years clinical training in Eastern university centers. Some research experience. Desires academic position allowing part time practice. Small medical school preferred. Address: A-140.

• ANATOMIST: Age 33, minor in physiology, requirements for Ph.D. completed except for some thesis work. Interested in teaching gross anatomy or physiology with time for research. Experience: assistant professor of biology, research in mammalian wecology, endocrinology, and circulation. Publications. Address: A-143.

• SURGERY: Residency for one year in general surgery sought by immigrant in Louisville, Ky. Married to an American. Internship expired Nov. 1954. Available Jan. 1, 1955. Prefer Louisville or vicinity. Address: A-144.

• BACTERIOLOGIST: Male, Ph. D., Harvard. Extensive teaching and research experience in medical bacteriology, general microbiology and applied immunology. Direct research: immunizing agents for bacterial and viral diseases; chemotherapy of virus infections, tuberculosis and malignancies; blood plasma fractionation and plasma volume expanders.

Closely associated with clinical evaluation of new chemotherapeutic agents, drugs and diagnostic aids. Member Sigma Xi and other scientific societies. Publications. Desires permanent teaching and/or research position, with or without administrative responsibilities. Address: A-145.

• BIOCHEMIST: M.D., Ph.D. Married, veteran. Sixteen years extensive experience in clinical biochemistry, research in biochemistry and endocrinology and in teaching. Publications. Extensive experience in medical editorial work.

Listed in American Men of Science and Who's Who in Medicine. Excellent references. Bogged down by administrative work and poor financial return. Wishes changes and desires teaching and/or hospital laboratory position with opportunities for research. Will consider editorial offers. Address: A-146.

• PHYSIOLOGIST: Ph.D. Now assistant professor Midwest medical school. Broad training physiology and physics. Fellowships. Teaching experience in medical and dental physiology, graduate biophysics. Active research on circulation in perfused organs under own grant; and aid in group studies in environmental stress. Extended experience in aviation physiology and applied physics, including many designs. Desires position in East with active teaching assignments, independence of research, chance to develop biophysics program for medical and graduate curriculum. Available Spring 1955. Address A-147.

• PHYSIOLOGIST: 30, family. Ph.D. June 1955. Research and teaching experience. Publications. Knowledge of biochemistry. Medical and zoological background in general and in mammalian physiology. Desires research opportunity with or without teaching. Special interests in cell metabolism and atherogenesis. Address: A-148.

• PHARMACOLOGIST-PHYSIOLOGIST: 31, veteran. Ph.D. Physiology and pharmacology, M.D. June 1955. Experienced in teaching pharmacology in university medical school. Broad training in classic mammalian pharmacologic techniques and biochemical procedures as they apply to determination of the mode of action of drugs. Desires teaching position with research opportunities. Will accept administrative duties. Publications, references. Address: A-149.

• ANATOMIST: Man, 27, married. Two children. Candidate for Ph.D. Research assistant to prominent histologist for two years on USPHS grant. One year graduate teaching assistantship in gross anatomy. Publications in gross and microscopic. Primary teaching interest in gross. Member AAAS and Sigma Xi. References. Address: A-150.

• MICROBIOLOGIST: Medical, Ph.D. 35. Considerable practical experience in all levels of medical teaching, diagnostic bacteriology, research in antibiotics, tuberculosis and administration. Desire academic or comparable stimulating position with future, in progressive institution. Resume on request. Address: A-151.

• NEUROLOGIST AND PSYCHIATRIST: M.D., Ph D., 41. Fully qualified in both fields including EEG, long teaching experience, numerous senior hospital appointments. Associate professor for last five years, teaching clinical neurology, neurophysiology (two years), clinical psychiatry, psychotherapy, dynamic and abnormal psychology, psychophysiology. Member many societies U. S. and Great Britain. Desire to concentrate on teaching and clinical work in full time senior capacity. May organize or take full time charge of single or joint department in both specialties in U. S. or Canadian medical school. Address: A-152.

• SURGEON: Board qualified July 1955. University trained. Teaching experience in anatomy, pathology and surgery. Desire full time academic appointment for teaching and research as well as clinical work. Address: A-153.

• HISTOCHEMIST: Man, Ph.D. Eight years experience research in histochemistry, his-

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tology, cytology and microscopic technics in well known university and medical school. High scholastic standard, Phi Sigma, Sigma Xi, publications. Desire teaching, research and/or laboratory supervision position in medical school, hospital or liberal arts college, available summer 1955. Address: A-154.

• BIOCHEMIST: 44, Ph.D. Desire two or three year appointment to project looking into problems of extrapulmonary ventilation or administration of volatile and gaseous anaesthetics. Some teaching preferred. Address: A-155.

• THORACIC SURGEON: 37, university-trained and qualified in general and thoracic surgery. Prefer limitation to thoracic and cardiovascular surgery. Experience in cardio-pulmonary physiology. Desire teaching position. Presently on surgical staff of eastern university. Eligible for boards in general and thoracic surgery. Completed Part I Boards in general surgery. Available after August 1. Address: A-156.

• INTERNIST-HEMATOLOGIST: M.D. Presently full-time assistant professor of medicine at large midwestern university hospital. Qualified for American Board of Internal Medicine. Member of Alpha Omega Alpha, American Federation for Clinical Research, American Association for Advancement of Science. Experienced clinician, teacher and investigator. Director of radioisotope laboratory. Numerous scientific publications. Interested in changing location, particularly West Coast, in academic position or private practice with teaching and research opportunities. Address: A-157.

• CHEMIST: Ph.D., minor in biochemistry, male, 10 years of research in medicinal chemistry, large pharmaceutical house. Publications, patents. Desires position in chemical-biochemical research in medical field. Particularly interested in position which would broaden experience by contact with other medical sciences. With or without teaching. Address: A-158.

• PHYSIOLOGIST: Ph.D., male, 30, family. Desires research and/or academic position in eastern part of U.S. Three years experience as research biologist with large eastern pharmaceutical company. Also teaching experience. Address: A-159.

• MICROBIOLOGIST: Medical, male, Ph.D., 37, married. Experience includes public health laboratory, industry (antibiotic research), and teaching all phases of medical microbiology. Present position associate professor microbiology in medical college. Wide research background in antibiotics, immunology, tuberculosis, bacterial dissociation. Have some training in use of isotopes. Desires teaching appointment with research opportunities in a medical school located south. Address: A-160.

• MICROBIOLOGIST: Ph.D., 30, presently assistant professor in medical school. Desires position in medical school in teaching and/or research with opportunity to complete work toward M.D. at least part time. Publications, associations, family, honorary societies. Ambition teaching and research in basic science. Address: A-161.

• ENDOCRINOLOGIST—PHYSIOLOGIST—ANATOMIST: with administrative experience desires position in graduate school of arts and sciences or medical school in teaching-research position. Harvard Ph.D.; seven years teaching-research experience, six years at Harvard. Extensive experience in endocrinology, general physiology, histology, medical genetics and zoological sciences. Interested in experimental medicine. Many publications. Membership in Sigma Xi, Kappa Delta Pi, Phi Sigma, N.Y.A.S., A.A.A.S., Amer. Soc. Zool., and others. Will accept administrative responsibilities. Address A-162.

• PHARMACOLOGIST: Ph.D., 26, married, two children. Director of research for established pharmaceutical company and medical student with part-time standing. Original publications, scientific societies, Soc. Experimental Biology and Medicine; American Federation for Clinical Research. Desires academic position with research possibilities while finishing medical school. Address: A-163.

• BACTERIOLOGIST: Male, 38, M.Sc., married. Seven years teaching and research experience in medical bacteriology. Desires part-time position with opportunity to work toward advanced degree. Present total college credit 260 semester hours. Present position an instructor in pathogenic bacteriology in medical school. Address: A-164.

• PUBLIC HEALTH AND PREVENTIVE MEDICINE: M.D. M.P.H. Fellow of the American Public Health Association, age 44, to be discharged from Army tour May 31, 1955. Desires to teach in a department of public health and preventive medicine, in a medical school. Six years experience in the practice of public health with some teaching experience, other experience in psychiatry and general practice. Address: A-165.

• ANESTHESIOLOGIST: 32, married, three children, veteran. Interested in heading a university anesthesia department. Five years experience in internal medicine before entering anesthesiology. Experienced in teaching and research. At the present time completing training at leading university hospital. Available December 1. Address: A-166.

• VIROLOGIST—BACTERIOLOGIST: Male, Ph.D., age 30. Teaching and research experience in medical bacteriology, general microbiology and virology. Tissue culture experience as applied to virology. Desires teaching position with opportunities for research. Address: A-167.

• OBSTETRICIAN-GYNECOLOGIST: Male, married, Board eligible. University teaching experience. Seeking change of location. Prefer full-time permanent academic position with opportunities for clinical investigation. Address: A-168.

• PHYSIOLOGIST: Ph.D., 29, broad biological training. Wide experience in teaching and research. Desires teaching position with opportunity for research. Experience in biometry. Research interest and experience in connective tissue permeability and biological effect of x-rays. Immediately available. Address: A-169.

• PEDIATRICIAN: Female, single. Candidate for M.P.H. Diplomate, American Board of Pediatrics. Interested in child health, teaching and research positions. Available July 1. Address: A-170.

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